A Dissertation on

"TWO YEARS STUDY OF WORK PLACE DEATHS AUTOPSIED IN GOVT. KILPAUK MEDICAL COLLEGE &HOSPITAL- CHENNAI"

Submitted to

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For the award of degree of

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(Branch-XIV)

GOVERNMENT KILPAUK MEDICAL COLLEGE & HOSPITAL

THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY,

CHENNAI, TAMILNADU.

2016 - 2019

BONA-FIDE CERTIFICATE

This is to certify that this dissertation titled **"TWO YEARS STUDY OF WORK PLACE DEATHS AUTOPSIED IN GOVT. KILPAUK MEDICAL COLLEGE & HOSPITAL- CHENNAI"** is a bona-fide original work done by **Dr. D.KARTHIK,** Post graduate in Department of Forensic Medicine Govt. Kilpauk Medical College Chennai, in partial fulfillment of the regulations of the Tamilnadu Dr. M.G.R. Medical University for the award of M.D. Degree in Forensic medicine (Branch XIV)

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CERTIFICATE

This is to certify that this dissertation titled **"TWO YEARS STUDY OF WORK PLACE DEATHS AUTOPSIED IN GOVT. KILPAUK MEDICAL COLLEGE & HOSPITAL- CHENNAI"** submitted by **Dr. D.KARTHIK,** is an original work done in the Department of Forensic Medicine, Government Kilpauk Medical College and hospital , Chennai in partial fulfillment of regulations of The Tamil Nadu Dr. M.G.R. Medical University, for the award of degree of M.D. (FORENSIC MEDICINE) Branch – XIV, under my supervision during the academic period 2016-2019.

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DECLARATION

I, **Dr. D.KARTHIK,** solemnly declare that the dissertation on **"TWO YEARS STUDY OF WORK PLACE DEATHS AUTOPSIED IN GOVT. KILPAUK MEDICAL COLLEGE & HOSPITAL- CHENNAI"** is a bona-fide work done by me during the period of January 2017 to December 2017 at Government Kilpauk Medical College and Hospital, under the expert Supervision of **Dr. R. SELVAKUMAR, M.D,** Professor and Head of Department of Forensic Medicine, Government Kilpauk Medical College, Chennai. This thesis is submitted to The Tamil Nadu Dr .M.G.R. Medical University towards partial fulfillment of the rules and regulations for the M.D. degree examinations in Forensic Medicine to be held in April 2019.

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CERTIFICATE - II

This is to certify that this dissertation work titled **"TWO YEARS STUDY OF WORK PLACE DEATHS AUTOPSIED IN GOVT. KILPAUK MEDICAL COLLEGE & HOSPITAL- CHENNAI"** of the candidate **Dr. D.KARTHIK,** with registration Number **201624151** for the award of **M.D. degree** in the branch of **FORENSIC MEDICINE.** I personally verified the urkund.com website for the purpose of plagiarism Check. I found that the uploaded thesis file contains from introduction to conclusion and result shows 3 **percentage** of plagiarism in the dissertation.

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ABSTRACT

Aims & objectives of the study:

1. To find out the most common cause of death encountered in occupation – related deaths.
2. To find out the most common age group involved in occupation related deaths.
3. To find out the most predominant sex involved in occupation related deaths.
4. To find out the risk factors in occupation – related deaths.
5. To find out the manner of death.

Methodology:

The present work is a cross-sectional & descriptive study of occupational deaths autopsies conducted in the Department of Forensic Medicine & Toxicology, Govt. Kilpauk Medical College & Hospital between January 2016 and December 2017.

Results:

Maximum deaths occurred in the age group of 21-30 years (35 Cases) Which constitutes 28% among the total deaths followed by age group between 41-50 Years (29) Cases which constitutes to 23.1% of the total , Most predominant sex affected is Males (112 Cases) which constitutes 88.9% of the total deaths. Most Predominant religion belongs to Hindu Religion (107 Cases) which constitutes 85% of the total deaths followed by Christian (8 Cases) and Muslim (8 Cases) religion which constitutes 6% each of the total deaths, Regarding Marital Status number of deaths was observed more in married a person (75 Cases) who constitutes 59.5% of the total deaths. Regarding Socio Economic Status. Higher number of deaths were observed in Lower Class (106 Cases) which constitutes 84.1% among the total deaths followed by

Lower Middle Class (15 Cases) which constitutes 11.9% of the total deaths, Number of brought dead cases (80 Cases) was higher which constitutes to 63.5% of the total deaths and treated cases were (46 Cases) which constitutes 36.55 of the total deaths. Pertained to period of survival 13 deaths occurred in 6-12 hours which constitutes 28.2 % of the total death followed by 10 deaths in 12-24 hors which constitutes 21.7% of the total deaths, Most of the deaths occurred during 12.01 P.M to 6.00 P.M (56 Cases) which constitutes 44.44% of total deaths followed by 6.01 A.M to 12.00 P.M (29 Cases) which constitutes 23.02% of the total deaths. Most of the deaths occurred in summer season (63 Cases) which constitutes 50% of the total deaths followed by rainy (24 Cases) which constitutes 19% of the total deaths. Most of the deaths were observed in skilled labourers (hard working) (26 Cases) which constitutes 20.8% of the total deaths followed by Cooly (25 Cases) which constitutes 19.4% of the total deaths, Regarding the method of occurrence more number of deaths were seen in electric shock (46 Cases) which constitutes 36.6% of the total deaths followed by match stick factory accidental burns (37 Cases) Which constitutes 29.2% of the total deaths. Regarding Time Since Death less than 6 hours was high (48 Cases) which constitutes 38.1% of the total deaths followed by 12-24 hours (36 Cases) which constitutes 28.5 % of the total deaths. Regarding the Cause of Death Shock and Haemorrhage due to multiple injuries sustained (33 Cases) was high which constitutes 26.1% of the total deaths followed by septicaemic shock (32 Cases) which constitutes 25.3% of the total deaths, Regarding the manner of death (122 Cases) were accidental deaths which constitutes 96.8% of total deaths followed by natural deaths (3 Cases) which constitutes 2.4% of the total deaths. followed by septicaemic shock (32 Cases) which constitutes 25.3% of the total deaths.

Keywords: occupational fatality construction sector ,Industrial hazards**,** ". Routine disasters, methyl iso cyanate choking, Psychological problems Chasnala Disaster, Korba Chimney Collapse , Demographics.

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INTRODUCTION

According to the **International Labour Organization (ILO)**, more than 2.3 million workers die every year as a result of occupational accidents or work-related diseases. To put this number in perspective, across the world 167,000 people died in armed conflicts in 2015, according to the latest edition of the IISS Armed Conflict Survey. In addition to this astounding number, each year 313 million accidents occur on the job resulting in extended absences from work.[1]

The ILO estimates that the annual cost to the global economy from accidents and work-related diseases alone is a staggering $3 trillion. Moreover, a recent report suggests the world's 3.2 billion workers are increasingly unwell, with the vast majority facing significant economic insecurity: 77% work in part-time, temporary, "vulnerable" or unpaid jobs.[1] What's more, the labour force is growing older and less healthy: 52% is overweight or obese and 38% suffer from excessive pressure on the job. In addition to the social and human costs of health problems and fatalities, the cumulative economic burden caused by a lack of wellness at work is enormous for both businesses and the global economy. This is especially true when productivity losses are added to direct medical expenses.[3]

A lack of wellness in the labour force is estimated to cost the global economy between 10 to 15% of global GDP. In the US alone, work-related injuries, illnesses and stress, and workers' disengagement are estimated to cost

the economy more than $2.2 trillion a year. In 2013, Klaus Schwab, Founder and Executive Chairman World Economic Forum, introduced the Forum's Workplace Alliance Report. He pointed out the importance and economic implications of workplace wellness: "Employers have a great responsibility to nurture employee resilience; there is strong evidence that a healthy workforce is vital to a country's competitiveness, productivity and well-being. Over 50% of the working population spend the majority of their time at work, so the workplace provides a unique opportunity to raise awareness, as well as guide and incentivize individuals to develop healthier lifestyles. This has proven to have a multiplier effect, as workers integrate health and well-being into their families and communities."[3]

The causes of safety and health problems vary by sector. In the urban economy, for example, approximately one in six fatal workplace accidents reported globally takes place in the construction sector. This is mainly because of the intrinsically hazardous nature of this work, the challenging locations of construction sites, changing work environments and high rates of staff turnover. There are also health problems associated with building activities, such as musculoskeletal disorders and exposure to hazardous substances, such as asbestos.[3]

Construction is the most dangerous land-based work sector. The leading safety hazards on site are falls from height, motor vehicle crashes, excavation accidents, electrocution, machines, and being struck by falling objects.[3]

Some of the main health hazards on site are asbestos, solvents, noise, and manual handling activities. Falls from heights is the leading cause of injury in the construction industry. Protection is also required when the employee is at risk to falling onto dangerous equipment. Fall protection can be provided by guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, and warning line systems. [3]

All employees should be trained to understand the proper way to use these systems and to identify hazards. The employee or employer will be responsible for providing fall protection systems and to ensure the use of these systems. Motor Vehicle Crashes are another major safety hazard on construction sites. It is important to be safety cautious while operation motor vehicles or Equipment on the site. [3]

Motor vehicles shall have a service brake system, emergency brake system, and a parking brake system. All vehicles must be equipped with an audible warning system if the operator chooses to use it. Vehicles must have windows and doors, power windshield wipers, and have a clear view of site from the rear window. Occupational factors make an important contribution to the global burden of disease.[4]

Work-related morbidity and mortality not only results in suffering and hardship for the Worker and his or her family, but also it adds to the overall cost to society through lost productivity and increased use of medical and welfare services. The cost to society has been estimated at 2-14% of the gross

national product in different studies in different countries. Construction labourers face highest risk at workplace.[4]

Construction sites are increasingly unsafe in Chennai city, with the department of factories, boilers, industrial safety and health recording one death a month at these places. Workers face various hazards at workplaces. In the recent times there is a lot of construction activity in the city, including Metro rail, flyovers and multi storage buildings. Workers employed are from rural areas and have no access to information on their rights and privileges.[4]

AIMS & OBJECTIVES OF THE STUDY

1. To find out the most common cause of death encountered in occupation – related deaths.
2. To find out the most common age group involved in occupation related deaths.
3. To find out the most predominant sex involved in occupation related deaths.
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REVIEW OF LITERATURE

An **occupational fatality** is a death that occurs while a person is at work or performing work related tasks. Occupational fatalities are also commonly called "occupational deaths" or "work-related deaths/fatalities" and can occur in any **industry or occupation.**[19]

The mortality rate at workplaces in India has been increasing, the British Safety Council has said at the opening of its first overseas office in the city to raise awareness of the importance of health and safety. The British Safety Council (India) LLP will be based in Lower Parel and offer services like auditing, training, e-learning for the Indian market. The services will be offered in partnership with NIST Institute, a leading safety training and consultancy company.19

The council, which has been serving India for the past 30 years, said that a recent report on workplace fatalities in the country showed that about 48,000 workers died due to occupational accidents. The report said that 38 fatal accidents took place every day in the construction sector alone. In contrast, the U.K. reported 137 incidents in 2016 in all employment sectors. A statement issued by the British Safety Council said, "In a country with a population of 1.25 billion, around 80% of workers of the estimated 465 million- strong workforce are not protected by the existing health and safety legal framework." Mike Robinson, chief executive of the British Safety Council, said, "The construction sector is the one with the highest fatality rate in the U.K. and

India. The death rate is 10 times higher in India as compared with the U.K. The construction sector is where the focus needs to be." Mr. Robinson said rural areas covered a huge portion of the country and to reach out to the workers there they had to start with the largest urban cities and businesses19

Major Industrial Disasters in India

Successful management of disasters mainly requires that society put into price the ample stocks of knowledge and experience about them that already exist. Surprises, which confound both expert and lay expectants, are quite different and much less understood. They include disasters like Bhopal and Chernobyl and Minamata events or their consequences or both - that lie outside the realm of previous experience. Because surprises are unprecedented events, it is difficult to design specific anticipatory measures of the kind that have proved successful in reducing routine hazards.[24]

Industrial hazards are threats to people and life-support systems that arise from the mass production of goods and services. When these threats exceed human coping capabilities or the absorptive capacities of environmental systems they give rise to industrial disasters. Industrial hazards can occur at any stage in the production process, including extraction, processing, manufacture, transportation, storage, use, and disposal. Losses generally involve the release of damaging substances (e.g. chemicals, radioactivity and genetic materials) or damaging levels of energy from industrial facilities or equipment into surrounding environments. This usually occurs in the form of

explosions, fires, spills, leaks, or wastes. During the last several decades there has been a growing awareness of the expanding risks and consequences of major industrial disasters. This is reflected in official statistics, mass media reports, and the appearance of new public institutions that address the problem.[24]

The growth of industrial accident prevention companies and the blossoming of literature on industrial risk assessment are other expressions of the same trend. Industrial disasters are not simply safety problems that need to be resolved: they also have wider significance because they offer important opportunities to learn about the "goodness of fit" between society, technology, and environment and about how that fit can be strengthened or weakened by unexpected events. [24]

This is the kind of information that will be invaluable to humanity during an era of deep and far-reaching societal and environmental change. However, if we are to make optimal use of such opportunities it may be necessary to modify the way we think about industrial disasters. It is customary to view industrial disasters as "extreme events" that are different mainly in degree from more mundane disruptions to which industries and society have become adjusted. [24]

It is me to make a clear distinction between two types of industrial disasters - "routine" disasters and "surprises". Routine disasters are well

understood by experts and susceptible to management using long established principles and practices. They constitute the great majority of threats too.

The Bhopal Disaster:

It is also referred to as the Bhopal gas tragedy, was a gas leak incident in India, considered the world's worst industrial disaster. It occurred on the night of 2–3 December 1984 at the Union Carbide India Limited (UCIL) pescide plant in Bhopal, Madhya Pradesh.

Over 500,000 people were exposed to methyl iso cyanate (MIC) gas and other chemicals. The toxic substance made its way in and around the shanty towns located near the plant. Estimates vary on the death toll. The official immediate death toll was 2,259. The government of Madhya Pradesh confirmed a total of 3,787 deaths related to the gas release. A government affidavit in 2006 stated the leak caused 558,125 injuries including 38,478 temporary injuries and approximately 3,900 severely and permanently disabling injuries. The cause of the disaster remains under debate.[27]

The Indian government and local activists argue slack management and deferred maintenance created a situation where routine pipe maintenance caused a backflow of water into a MIC tank triggering the disaster. Union Carbide Corporation (UCC) contends water entered the tank through an act of sabotage. In November 1984, most of the safety systems were not functioning and many valves and lines were in poor condition. In addition, several vent gas scrubbers had been out of service as well as the steam boiler, intended to clean

the pipes. Another issue was that Tank 610 contained 42 tons of MIC, more than safety rules allowed for. During the night of 2–3 December 1984, water entered a side pipe that was missing its slip-blind plate and entered Tank E610 which contained 42 tons of MIC. A runaway reaction started, which was accelerated by contaminants, high temperatures and other factors. The reaction was sped up by the presence of iron from corroding non-stainless steel pipelines. The resulting exothermic reaction increased the temperature inside the tank to over 200 °C (392 °F) and raised the pressure. This forced the emergency vent of pressure from the MIC holding tank, releasing a large volume of toxic gases. About 30 metric tons of methyl isocyanate (MIC) escaped from the tank into the atmosphere in 45 to 60 minutes. The gases were blown in south eastern direction over Bhopal. The initial effects of exposure were coughing, severe eye irritation and a feeling of suffocation, burning in the respiratory tract, blepharospasm, breathlessness, stomach pain and vomiting.[27]

People awakened by these symptoms fled away from the plant. Those who ran inhaled more than those who had a vehicle to ride. Owing to their height, children and other people of shorter stature inhaled higher concentrations. Thousands of people had died by the following morning. Primary causes of deaths were choking, reflexogenic circulatory collapse and pulmonary oedema. Findings during autopsies revealed changes not only in the lungs but also cerebral oedema, tubular necrosis of the kidneys, fay degeneration of the liver and necrotizing enteris. The stillbirth rate increased by

up to 300% and neonatal mortality rate by around 200%. insufficiency, cardiac insufficiency (cor pulmonale), cancer and tuberculosis.[27]

Chasnala Mining Disaster 1975:

The Chasnala Mine Disaster occurred on the evening of 27 December 1975, and killed 372 miners in Dhanbad, India. On 27 December 1975, an explosion rocked the Chasnala Colliery in Dhanbad, India. The explosion was most likely caused by sparks from equipment igning a pocket of flammable methane gas. Even a small spark can ignite the surges of gas that may suddenly fill a mine. Clouds of coal dust raised by the explosion and accompanying shock wave contribute to these sorts of mine explosions, making the flames self-sustaining. The Chasnala Colliery explosion was so severe that the mine collapsed, and millions of gallons of water from a nearby reservoir rushed into the pits at a rate of seven million gallons per minute. Those miners who weren't killed in the blast now found themselves trapped under debris, or drowned as the water quickly filled the mine. Rescue workers connoted their efforts to dig out bodies and survivors until 19 January 1976. [27]

Sadly, there were no survivors, and most of the bodies were never recovered. The local workers' union claimed a total death toll of almost 700 people. The government's official death toll, however, is 372. The Chasnala Colliery's records were poorly kept, and many bodies were never recovered, so there is no way of knowing how many miners actually perished in the Chasnala Mine Disaster. The lake that sank and killed 372 miners at Chasnala In the

immediate aerate, the plant was closed to outsiders (including UCC) by the Indian government. The initial investigation was conducted by the Council of Scientific and Industrial Research (CSIR) and the Central Bureau of Investigation.[27]

Union Carbide organized a team of international medical experts, as well as supplies and equipment, to work with the local Bhopal medical community, and the UCC technical team began assessing the cause of the gas leak. The health care system immediately became overloaded. Medical staffs were unprepared for the thousands of casualties. Doctors and hospitals were not aware of proper treatment methods for MIC gas inhalation. Long-term health effects some data about the health effects are still not available. A total of 36 wards were marked by the authorities as being "gas affected," affecting a population of 520,000. Of these, 200,000 were below 15 years of age, and 3,000 were pregnant women.[27]

The official immediate death toll was 2,259, and in 1991, 3,928 deaths had been officially certified. The government of Madhya Pradesh confirmed a total of 3,787 deaths related to the gas release. Later, the affected area was expanded to include 700,000 citizens. A government affidavit in 2006 stated the leak caused 558,125 injuries including 38,478 temporary injuries and approximately 3,900 severely and permanently disabling injuries. A number of clinical studies are performed. The quality varies, but the different reports support each others. Studied and reported long term health effects are: Eyes:

Chronic conjunctivitis, scars on cornea, corneal opacities, early cataracts Respiratory tracts: Obstructive and/or restrictive disease, pulmonary fibrosis, aggravation of TB and chronic bronchitis Neurological system: Impairment of memory, finer motor skills, numbness etc. Psychological problems.

Post traumatic stress disorder (PTSD) Children's health: Peri- and neonatal death rates increased. Failure to grow, intellectual impairment etc. Missing or insufficient fields for research are female reproduction, chromosomal aberrations, cancer; immune deficiency, neurological sequelae, post traumatic stress disorder (PTSD) and children born are the disaster.[27]

Jaipur Oil Depot Fire, 2009:

The Jaipur oil depot fire broke out on 29 October 2009 at 7:30 PM (IST) at the Indian Oil Corporation (IOC) oil depot's giant tank holding 8,000 kilolitres (280,000 cu) of oil, in Sitapura Industrial Area on the outskirts of Jaipur, Rajasthan, killing 12 people and injuring over 200. The blaze connoted to rage out of control for over a week is it started and during the period half a million people were evacuated from the area. The oil depot is about 16 kilometres (9.9 mi) south of the city of Jaipur. The incident occurred when petrol was being transferred from the Indian Oil Corporation's oil depot to a pipeline. There were at least 40 IOC employees at the terminal, situated close to the Jaipur International Airport) when it caught fire with an explosion. The Met department recorded a tremor measuring 2.3 on the Richter scale around the me the first explosion at 7:36 pm which resulted in shearing of glass

windows nearly 3 kilometres (1.9 mi) from the accident site. The Chasnala Disaster inspired the 1979 film Kaala Pahar, directed by Yash Chopra. The Chasnala Disaster was one of the worst in Indian history. The nationalization of Indian mining since then has contributed to a significant decrease in the incidence of mining accidents in that country.[27]

The fire was a major disaster in terms of deaths, injury, loss of business, property and man-days, displacement of people, environmental impact in Jaipur. As per eyewitnesses having factories and hotels around Indian Oil's Sitapura (Jaipur) Oil Terminal they felt presence of petrol vapour in the atmosphere around 4:00 p.m. on 29 October 2009. Within the next few hours the concentration of petrol vapour intensified making it difficult to breathe. The Ayush Hotel in the vicinity of the terminal asked all its guests to vacate the Hotel to avert any tragedy. Adjacent to the Terminal wall was the workshop of Morani Motors (P) Limited whereas per eyewitnesses the Cars parked on the roof top were thrown up in Air to about 10 feet and 35 new Hyundai brand cars were completely damaged. The police, civil administration and fire emergency services were oblivious of the situation developing in Indian Oil Terminal. Around half past six the staff in the terminal had contained the leak and flow of petrol panicked and reported the matter to nearby Sanganer Sadar Police Staon. Within the next 30 minutes the local police chief and District Collector were on the spot along with Indian Oil general manager, but with no plan to deal with the situation. The nearby industries, which were running second ships, were cautioned to vacate the area. At 7:35 p.m. a huge ball of fire with loud

explosion broke out engulfing the leaking petrol tank and other nearby petrol tanks with cernuous fire with flames rising 30–35 m (98–115) and visible from a 30 km (19 mi) radius. The traffic on adjacent National Highway No. 12 was stopped leading to a 20 km (12 mi) long traffic jam. The Jaipur International Airport is just 5 km (3.1 mi) away from the accident site. Both the Army and experts from Mumbai were employed on 30 October 2009 to contain the fire, which started when an oil tanker caught fire at the depot in the Sitapura Industrial Area. The district administration disconnected electricity and evacuated nearby areas to limit the damage.[27] The fire sill raged on 31 October 2009, in the Indian Oil Corporation Depot, at Jaipur, are a defective pipe line leak that set fire to 50,000 kilolitres (1,800,000 cu) of diesel and petrol out of the storage tanks at the IOC Depot. By then, the accident had already claimed 11 lives and seriously injured more than 150. The District Administration and Indian Oil Corporation had no disaster management plan to deal with this kind of calamity. The local fire officers were ill equipped to deal with fire accidents of this magnitude. They remained onlookers and no efforts were made to breach the terminal wall to get closer to kerosene and diesel tanks to cool them with water jets.[27]

Korba Chimney Collapse:

The 2009 Korba chimney collapse occurred in the town of Korba in the Indian state of Chhatisgarh on 23 September 2009. It was under construction were under contract for the Bharat Aluminium Co Ltd (BALCO). Construction had reached 240 m (790) when the chimney collapsed on top of more than 100

workers who had been taking shelter from a thunderstorm, at last 45 deaths were recorded.[27]

Plans specify a 275-metre (902) chimney for the construction of a thermal power plant by BALCO, which is owned by Vedanta Resources. The incident happened during extreme weather conditions involving lightning and terrene rainfall.

Workers sought shelter from the rain in a nearby store room, and a lightning strike at approximately 16:00 brought the chimney down on top of them. A rescue attempt was initiated following the collapse. Ongoing rain obstructed efforts to retrieve the trapped workers. At least seven of the wounded were hospitalised. An investigation is ongoing to determine the cause of the collapse. BALCO initially did not discussed the incident at length, stung only that ‘there is an accident and some people are injured’ claiming to be too busy with the rescue effort to make a longer statement. The state government believes that BALCO had been "overlooking security aspects". In November 2009, the project manager from GDCL was arrested, as well as three officials from Vedanta Resources which manages BALCO. Later the National Institute of Technology (NIT) Raipur observed that the materials were of substandard quality and technically faulty in design. NIT also concluded that there was improper water curing and that soil at the site was not up to code. Addionally, supervision and monitoring were found negligent.[27]

Mayapuri Radiological Incident:

In April 2010, the locality of Mayapuri was affected by a serious radiological accident. An AECL Gammacell 220 research irradiator owned by Delhi University since 1968, but unused since 1985, was sold at auction to a scrap metal dealer in Mayapuri on February 26, 2010. The orphan source arrived at a scrap yard in Mayapuri during March, where it was dismantled by workers unaware of the hazardous nature of the device. The cobalt-60 source was cut into eleven pieces. The smallest of the fragments was taken by Ajay Jain who kept it in his wallet, two fragments were moved to a nearby shop, while the remaining eight remained in the scrap yard.

All of the sources were recovered by mid-April and transported to the Narora Atomic Power Station, where it was claimed that all radioactive material originally contained within the device was accounted for. The material remains in the custody of the Department of Atomic Energy.[27]

One of the main business at Mayapuri is the recycling of metal scraps and sale of salvage vehicle parts. It is, arguably, the biggest market for used automotive and industrial spare parts in India. Many traders from all over India come here to sell or purchase old auto parts. Many small workshops specialized in different metals are active in the Mayapuri area. The safety of the scrap yards became a concern are the radiological accident which occurred in April 2010. The area is not equipped with 6 radiation detectors or porcs, despite

being a common practice in steel recycling factories in the US and in most of the European countries.[27]

The presence of toxic heavy metals and of harmful chemicals in the waste generated by these activities presents a direct menace for the health of several ten thousands of people living in the area. hp://en.wikipedia. org/wiki/Mayapuri Eight people were hospitalized as a result of radiation exposure, where one later died. Five patients suffered from the haematological form of the acute radiation syndrome and local cutaneous radiation injury as well. While four patients exposed to doses between 0.6 and 2.8 Gy survived with intensive or supportive treatment, the patient with the highest exposure of 3.1 Gy died due to acute respiratory distress syndrome and multi-organ failure on Day 16 are hospitalization. The incident highlights the current gaps in the knowledge, infrastructure and legislation in handling radioactive materials. Medical institutions need to formulate individualized triage and management guidelines to immediately respond to future public radiological accidents.[27]

Bombay Docks Explosion, 1944:

The Bombay Explosion (or Bombay Docks Explosion) occurred on 14 April 1944, in the Victoria Dock of Bombay (now Mumbai) when the freighter SS Fort Skine carrying a mixed cargo of coon bales, gold, and ammunition including around 1,400 tons of explosives, caught fire and was destroyed in two giant blasts, scaring debris, sinking surrounding ships fired to the area killing around 800 people. The SS Fort Skine was a 7,142 gross register ton

freighter built in 1942 in Prince Rupert, British Columbia, under a lend-lease agreement, and was named aer Fort Skine, a former outpost of the Hudson's Bay Company.

Sailing from Birkenhead on 24 February via Gibraltar, Port Said and Karachi, she arrived at Bombay on 12 April 1944. Her cargo included 1,395 tons of explosives including 238 tons of sensive "A" explosives, torpedoes, mines, shells, ammunitions, Super marine Spire fighter aircraft, raw coon bales, barrels of oil, chamber, scrap iron and approximately £890,000 of gold bullion in bars in 31 crates. The 87,000 bales of coon and lubricating oil were loaded at Karachi and the ship's captain, Alexander James Naismith, recorded his protest about such a "mixture" of cargo. The transportation of coon through sea route was inevitable for the merchants, as transporting coon in rail from Punjab and Sindh to Bombay was banned at that me. The vessel had berthed and was still awaiting unloading on 14 April, are 48 hours of berthing. In the mid-afternoon around 14:00, the crew were alerted to a fire onboard burning somewhere in the No. 2 hold. The crew, dockside fire teams and fireboats were not unable to extinguish the conflaguration, despite pumping over 900 tons of water into the ship, nor were they able to find the source due to the dense smoke.[27]

The water was boiling all over the ship, due to heat generated by the fire. At 15:50 the order to abandon ship was given, and sixteen minutes later there was a great explosion, clung the ship in two and breaking windows over 12 km (7.5 mi) away. The two explosions were powerful enough to be recorded

by seismographs at the Colaba Observatory in the city. Sensors recorded that the earth trembled at Shimla, a city located at a distance of over 1700 km. The shower of burning material set fire to slums in the area. Around two square miles were set ablaze in an 800 m (870 yd) arc around the ship. Eleven neighbouring vessels had been sunk or were sinking, and the emergency personnel at the site suffered heavy losses. Attempts to fight the fire were dealt a further blow when a second explosion from the ship swept the area at 16:34. Burning coon bales fell from the sky on docked ships, on the dock yard, and on slum areas outside the harbour. The sound of explosions was heard as far as 50 miles (80 km) away. Some of the most developed and economically important parts of Bombay were wiped out because of the blast and resulting fire. The total number of lives lost in the explosion is estimated at more than 800, although some estimates put the figure around 1,300. The results of the explosion are summarized as follows: 231 people killed were attached to various dock services including fire brigade and dock employees. Of the above figure, 66 firemen were killed. More than 500 civilians were killed. Some estimates put total deaths up to 1300. More than 2500 were injured, including civilians 13 ships were lost and some other ships heavily or partially damaged Out of above, three Royal Indian Navy ships lost 31 wooden crates, each containing four gold bars, each gold bar weighing 2 stones[27]

The educational visits of the nurses of BJ Medical College Ahmedabad and JG Nursing College Ahmedabad were held on 10th and 12th November respecvely. They were informed about the activities of NIOH and ENVIS

NIOH A presentation about ENVIS NIOH centre activities were given by Ms Annie Soju, Programme Officer and Ms. Prarthana Trivedi, Information Officer. Mr. Deepak Purohit, IT Assistant gave an overview about the ENVIS NIOH Website. Ms. Shru Patel helped in getting the questionnaire filled by the visitors. of shipping destroyed and= another 50,000 tonnes of shipping damaged Loss of more than 50,000 tonnes of food grains,= including rice, gave rise to black-marketing of food grains The inquiry into the explosion identified the coon bales as probably being the seat of the fire. It was crucial of several errors: storing the coon below the munions, not displaying the red flag required to indicate a dangerous cargo on board, delaying unloading the explosives, not using steam injectors to contain the fire and a delay in alerting the local fire brigade. [27]

An Awareness programme was held in the ceramic units of Ahmedabad on 8th November 2014 to impart awareness about the occupational health problem in them. They were also told about the health hazards due to exposure to heat, warning signs of heat strokes and the protective measures need to be taken. [27]

Common Causes:

Common causes of occupational fatalities include falls, machine-related incidents, motor vehicle accidents, electrocution, falling objects, homicides and suicides. Oftentimes, occupational fatalities can be prevented.[46]

In the United States in 2007, 42% of occupational fatalities occurred during a transportation incident, 16% occurred after a worker came into contact with an object or equipment, 15% occurred as a result of a fall, 15% occurred as a result of assaulter other violent acts in the workplace, 12% were the result of chemical or environmental exposures (9%) and 3% were the result of fires or explosions.[6]

Risk Factors:

Many factors contribute to a fatal incident at work. Lack of appropriate employee training and failure to provide and enforce the use of safety equipment are frequent contributors to occupational fatalities. In some cases, employees do receive safety training, but language barriers prevent the employee from fully understanding the safety procedures. Incidents can also be the result of insufficient supervision of inexperienced employees or employees who have taken on a responsibility for which they are not properly trained. Poor worksite organization, staffing and scheduling issues, unworkable policies and practices and workplace culture can all play a role in occupational fatalities. An incident leading to an occupational fatality is generally not the fault of a single person, but the result of a combination of many human and environmental factors.[6]

Demographics:

In distinction to "risk factors", which may be thought to imply a causal link between such factors and fatality, statistics such as those from the U.S.

Bureau of Labor Statistics on the demographics of deaths at work do not imply that age and gender are in themselves causative factors of fatality, but simply show that fatalities occur more frequently among certain groups.[6]

Age:

Although all workers are at risk for occupational fatalities, elderly workers age 65 and older are roughly three times more likely to die at work. [6]

Gender:

A large majority of occupational deaths occur among men. In one U.S. study, 93% of deaths on the job involved men with a death rate approximately 11 times higher than women. The industries with the highest death rates are mining, agriculture, forestry, fishing, and construction, all of which employ more men than women. Deaths of members in the military is currently above 90% men.[6]

Prevention:

Occupational fatalities are preventable. Prevention of occupational fatalities depends on the understanding that worker safety is not only the responsibility of the worker, but is the primary responsibility of the employer. Employers must train all employees in the appropriate safety procedures and maintain a safe working environment so that fatalities are less likely to occur. An occupational fatality is not just the fault of the deceased worker; instead, it is the combination of unsafe work environments, insufficient safety training, and negligible employee supervision that contribute fatal incidents. As a result,

it is imperative that an employer address all the potential [risk] factors at the workplace and educate all employees in safe work practices and risk awareness.[6]

In order to perform adequate risk assessment of injuries that occur in the workplace, health and safety professionals use resources such as the Haddon Matrix. This model assesses the risks leading up to, during, and after a death in order to prevent future incidents of a similar nature. Employers and employees can learn how to identify risk factors in their work environment in order to avoid incidents that may result in death.[6]

Research regulation reporting and recommendation:

The regulatory organization for occupational injury control and prevention is the Occupational Safety and Health Administration (OSHA). Formed in 1970 as an agency of the United States Department of Labor under the Occupational Safety and Health Act, OSHA exists to prevent occupational injuries and deaths by creating and enforcing standards in the workplace. OSHA standards address employee training programs, safety equipment, employer record keeping and proper maintenance of the work environment. Failure to comply with the OSHA standards can result in workplace inspections and legal action including citations and fines. In very severe cases of employer misconduct, OSHA can "red flag" an operation and send the employer to legal court.[8]

To regulate the millions of workplaces in the United States, OSHA requires that all employers maintain a record of occupational injuries, illnesses and fatalities. Occupational fatalities must be reported to OSHA within eight hours of the incident. Failure to do so can result in legal action against the employer. Employers are responsible for staying current on OSHA standards and enforcing them in their own workplace. State OSHA organizations exist in twenty-eight states and are required to have the same or more rigorous standards than the federal OSHA standards. In these states, employers must abide by their state's regulations. It is not the responsibility of the employee to stay current on the OSHA standards.[8]

In addition to OSHA, the National Institute for Occupational Safety and Health (NIOSH) was formed under the Occupational Safety and Health Act as a federal research agency to formulate industry recommendations for health and safety. NIOSH is part of the Centers for Disease Control and Prevention (CDC) in the United States Department of Health and Human Services (DHHS). NIOSH analyzes workplace injury and illness data from all fifty states as well as provides support for state-based projects in occupational health and safety.[8]

Under NIOSH, the Fatality Assessment and Control Evaluation (FACE) Program tracks and investigates occupational fatalities in order to provide recommendations for prevention. A voluntary program for individual states created in 1989, FACE is active in California, Iowa, Kentucky,

Massachusetts, Michigan, New Jersey, New York, Oregon, and Washington. The primary responsibilities of the state FACE programs are to track occupational fatalities in their state, investigate select fatalities, and provide recommendations for prevention. As part of the prevention efforts, FACE programs also produce extensive prevention education materials that are disseminated to employees, employers, unions, and state organizations.[8]

Nationally, the Census of Fatal Occupational Injuries (CFOI), within the U.S. Department of Labor, compiles national fatality statistics. CFOI is the key, comprehensive system in the surveillance of occupational fatalities in the United States.[8]

Many other non-governmental organizations also work to prevent occupational fatalities. Trade associations and unions play an active role in protecting workers and disseminating prevention information. The National Safety Council also works to prevent occupational fatalities as well as provide resources to employers and employees.[8]

METHODS AND MATERIALS

Study group : All the cases of occupational deaths autopsied at Government Kilpauk Medical College & Hospital, except the skeletonised and exhumed bodies.

Study design : Descriptive, Observational, Cross-Sectional study

Place of study : Government Kilpauk Medical College.

Duration of study : 24 months.

Conflict of interest : Nil.

Hazards of study : Nil.

MATERIALS:

1. Police History.
2. Photographs taken by police at the scene of crime.
3. Medical/Treatment Records.
4. Autopsy Findings & photographs taken at autopsy.
5. Chemical analysis report.
6. Histo - Pathological report.

INCLUSION CRITERIA:

1. All the cases of occupational deaths autopsied at Government Kilpauk Medical College & Hospital from January -2016 to January – 2018.

EXCLUSION CRITERIA:

1. Skeletonised bodies.

2. Exhumed bodies.

DATA COLLECTION :

In this study, all the cases of occupational deaths autopsied at Government Kilpauk Medical College & Hospital will be analyzed. Data's will be collected in a format, from the Police Inquest reports and Post-mortem reports, Hospital reports if any. The emphasis will be on age, sex, marital status, religion, time of sustaining injury, time of death, occupation, fatal body part, cause of death, migratory or non-migratory population, protective gear, distance from site of injury to hospital, time taken to shift the deceased to hospital. All these data's will be documented and statistically analysed.

OBSERVATION & RESULTS

TABLE – 1: AGE WISE DISTRIBUTION

AGE	Total No. of work place deaths	Percent
<10 yrs	3	2
11 to 20	16	12.8
21 to 30	35	28
31 to 40	**20**	**16**
41 to 50	29	23.1
51 to 60	11	8.7
61 to 70	6	4.7
>70 yrs	6	4.7
Total	126	100

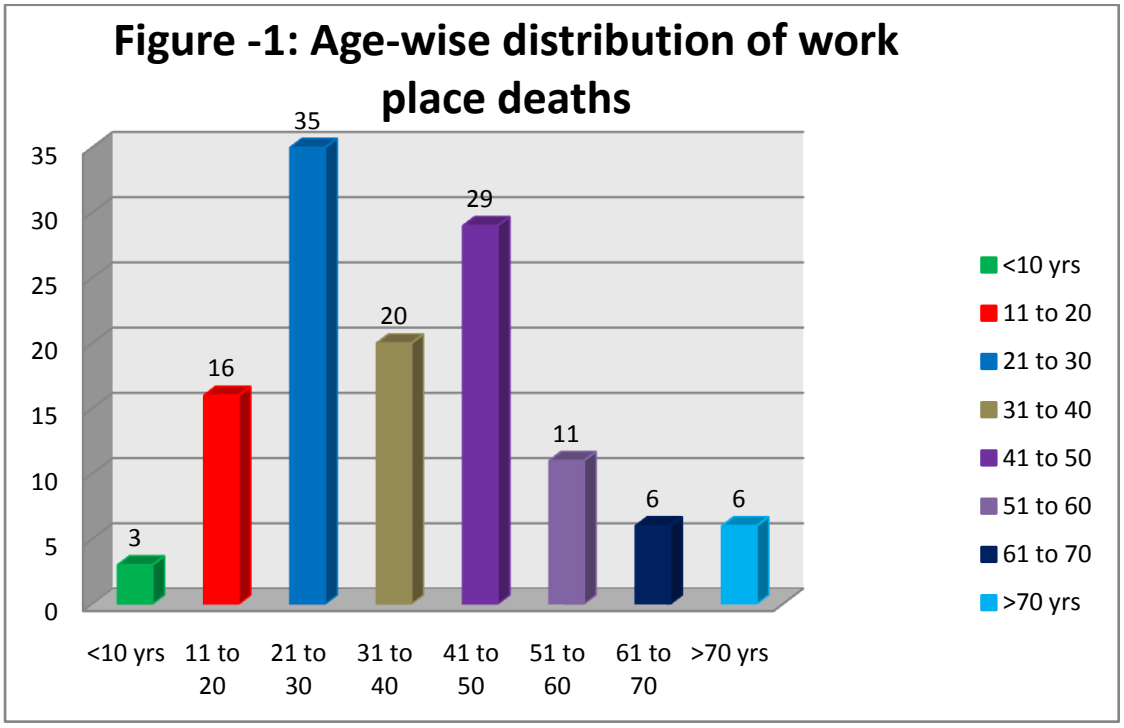


TABLE -2: SEX WISE DISTRIBUTION

SEX	Total No. of work place deaths	Percent
Male	**112**	**88.9**
Female	14	11.1
Total	126	100

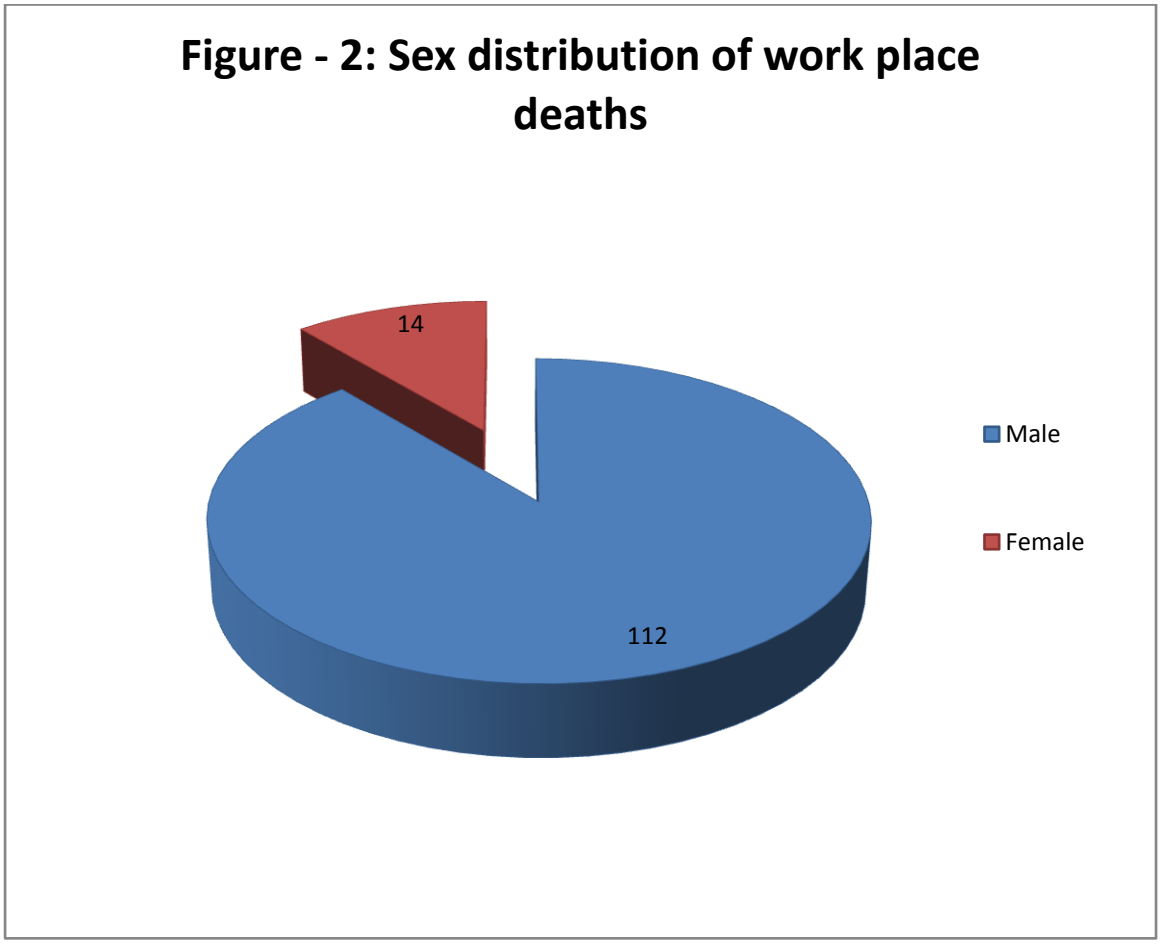


TABLE-3: RELIGION WISE DISTRIBUTION

RELIGION	Total No. of work place deaths	Percent
Christian	8	6.0
Hindu	**107**	**85.0**
Muslim	8	6.0
Unknown	3	3.0
Total	126	100

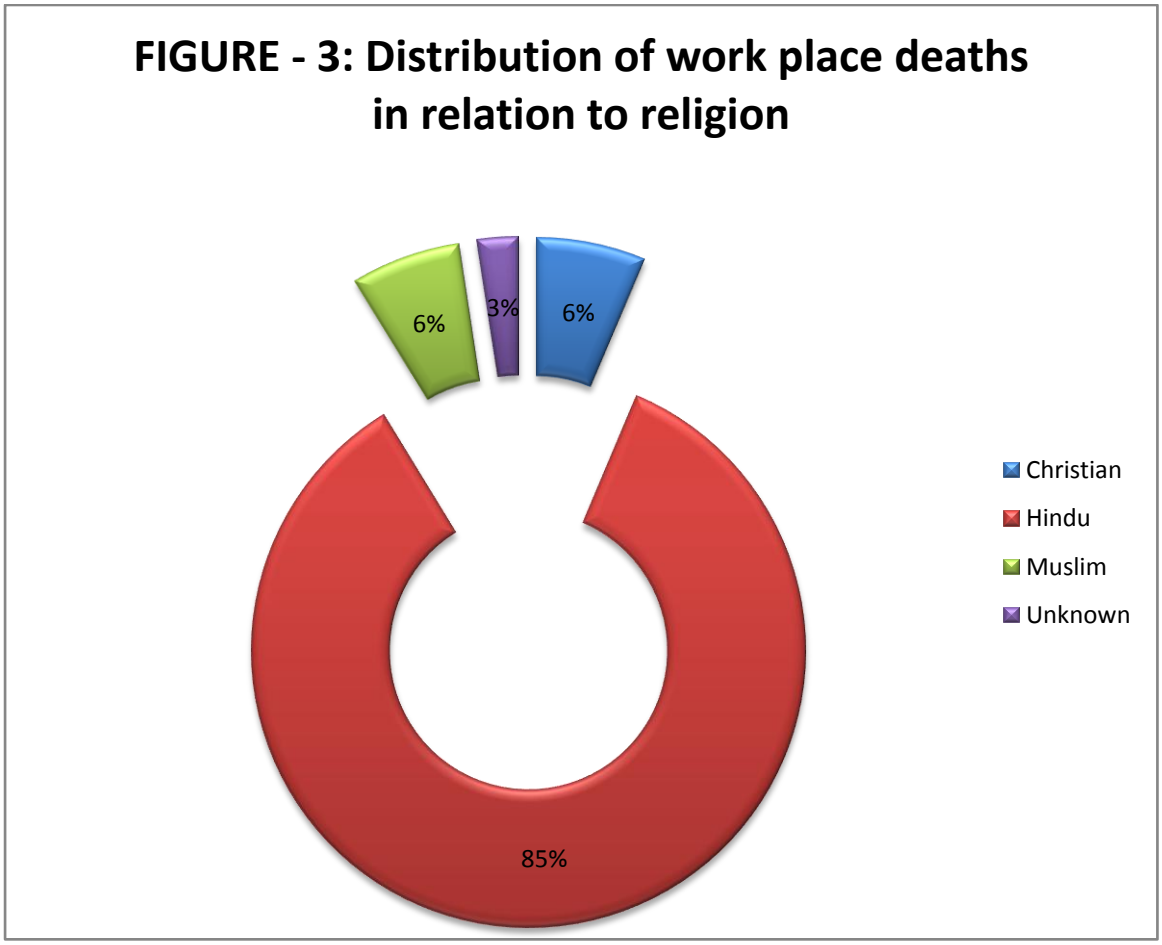


TABLE-4: MARITAL STATUS

Marital status	Total No. of work place deaths	Percent
Married	**75**	**59.5**
Unknown	3	2.4
Unmarried	48	38.1
Total	126	100

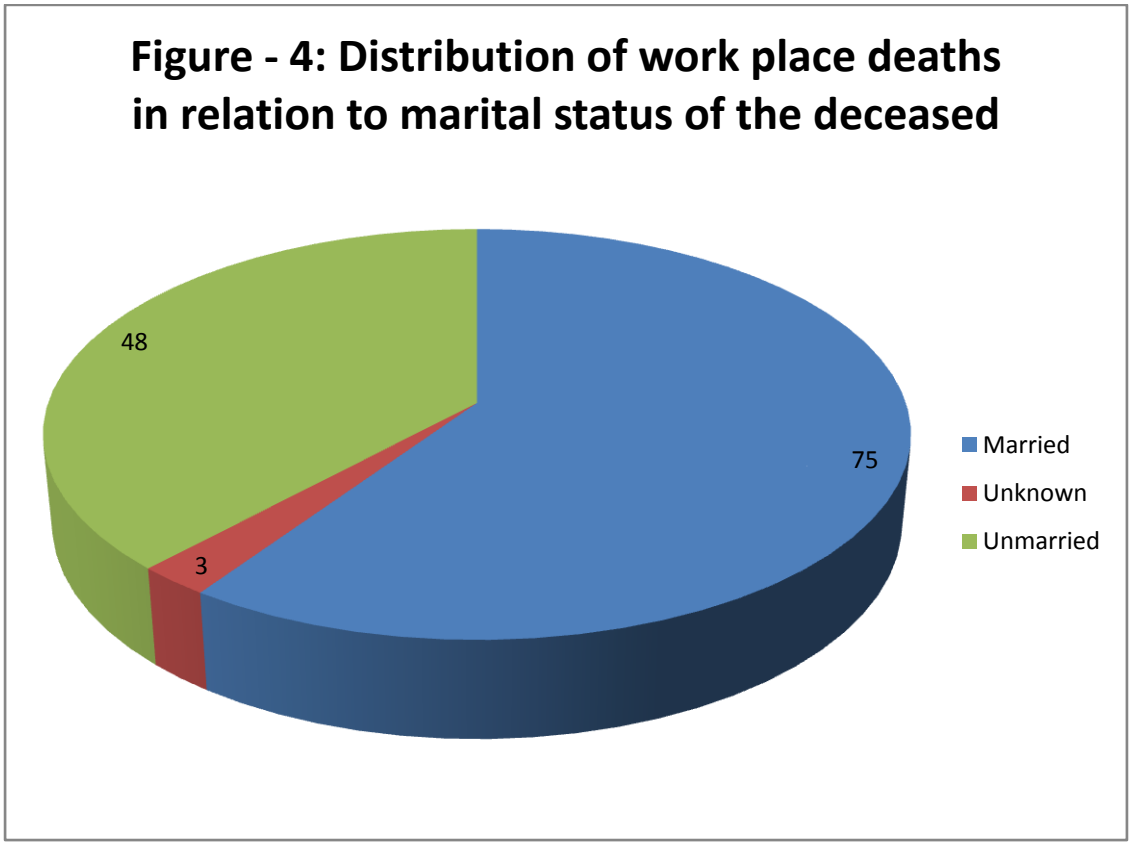


TABLE-5: SOCIO ECONOMIC STATUS

Socio-economic status	Total No. of work place deaths	Percent
Lower Class	**106**	**84.1**
Lower Middle Class	15	11.9
Middle Class	3	2.4
Upper Middle Class	1	0.8
Upper Class	1	0.8
Total	126	100

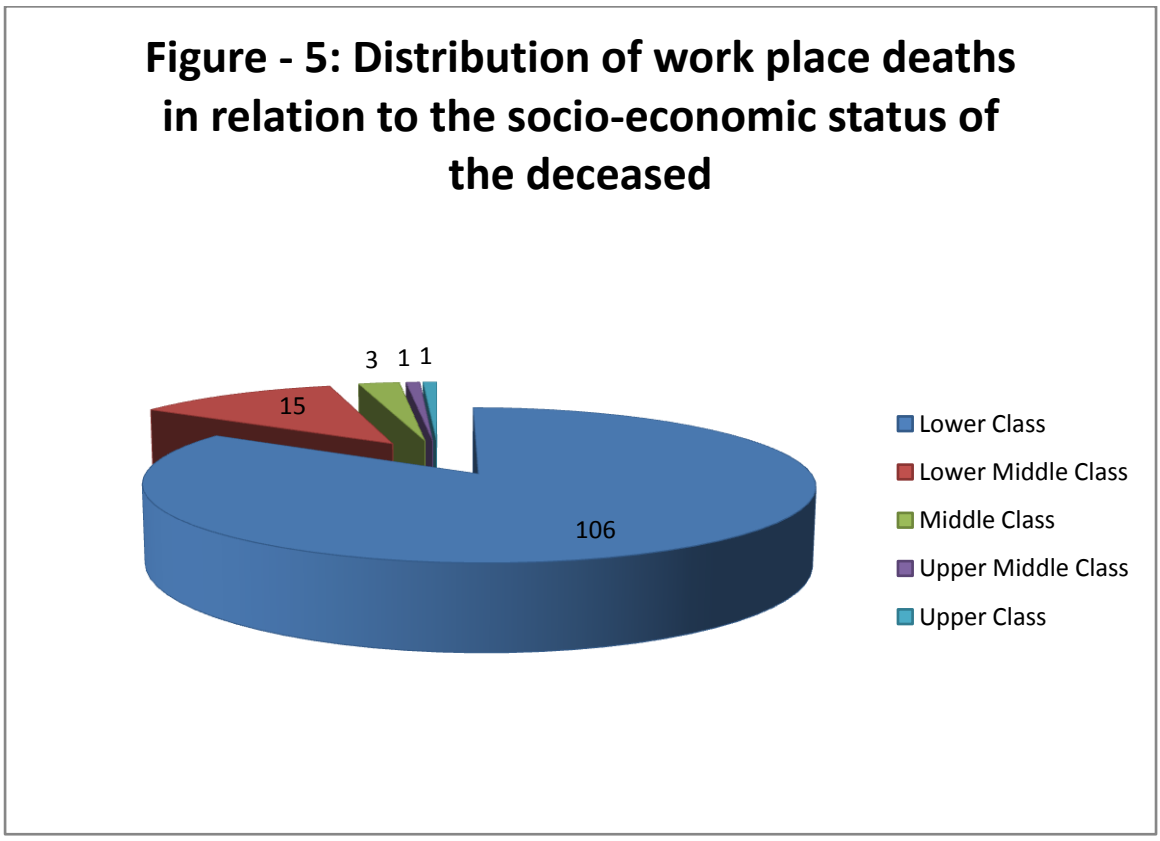


TABLE – 6: FREQUENCY OF TREATED AND BROUGHT DEAD CASES

TREATED	Total No. of work place deaths	Percent
B.D.	**80**	**63.5**
Treated	46	36.5
Total	126	100

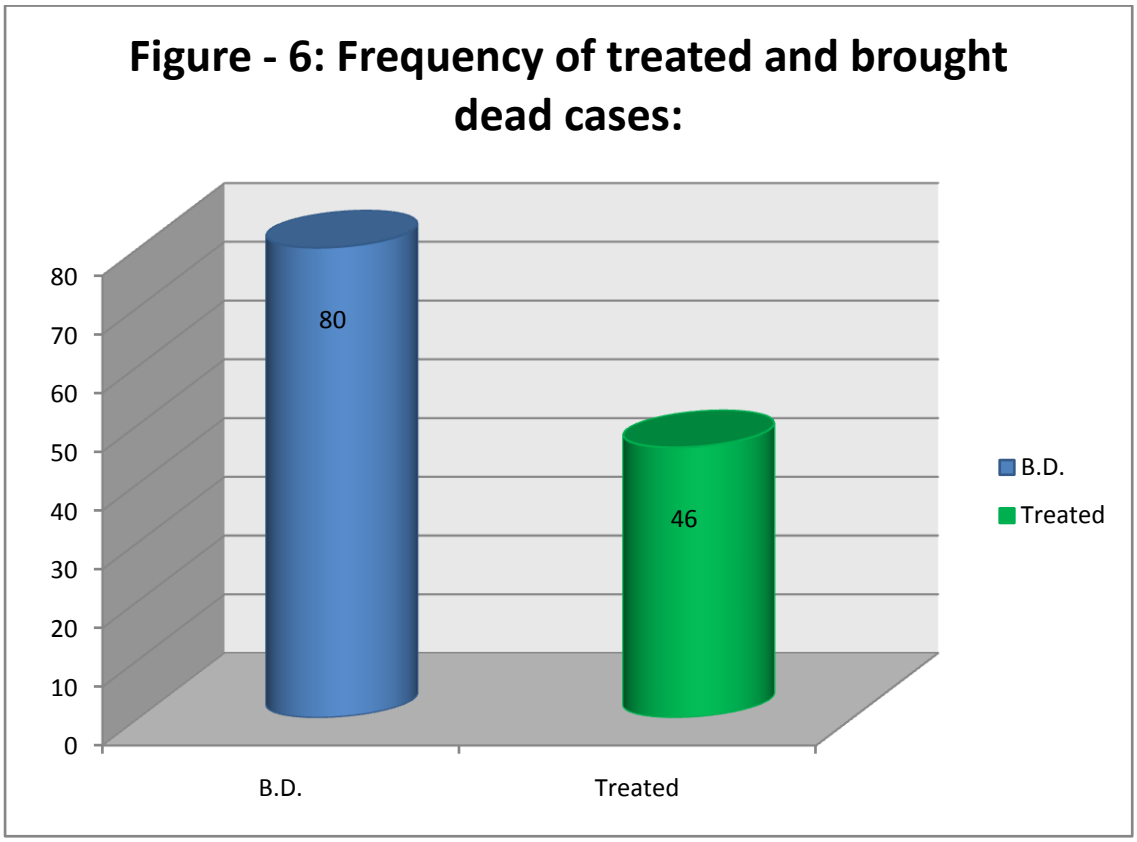


TABLE – 7: PERIOD OF SURVIVAL

Duration of survival	Total No. of work place deaths	Percent
6-12 hours	**13**	**28.2**
12-24 hours	10	21.7
1-2 days	8	17.3
2-7 days	4	8.6
7- 28 days	7	15.2
More than 28 days	4	8.6
Total	46	100.00

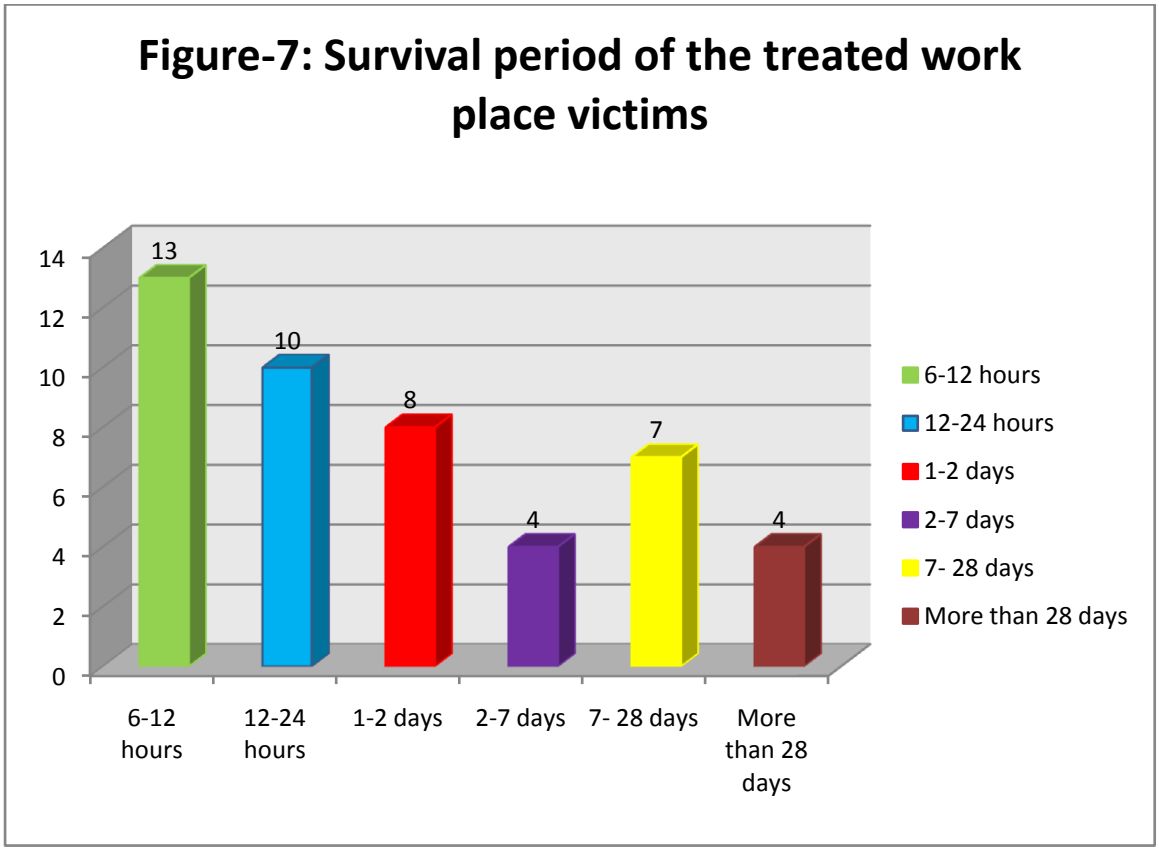


TABLE-8: TIME OF OCCURENCE

Time of occurence	Total No. of work place deaths	Percent
12.01 am- 6 am	19	15.08
6.01 am - 12 noon	29	23.02
12 .01 pmto 6 pm	56	44.44
6.01 pm - 12.00 midnight	22	17.46
Total	126	100.00

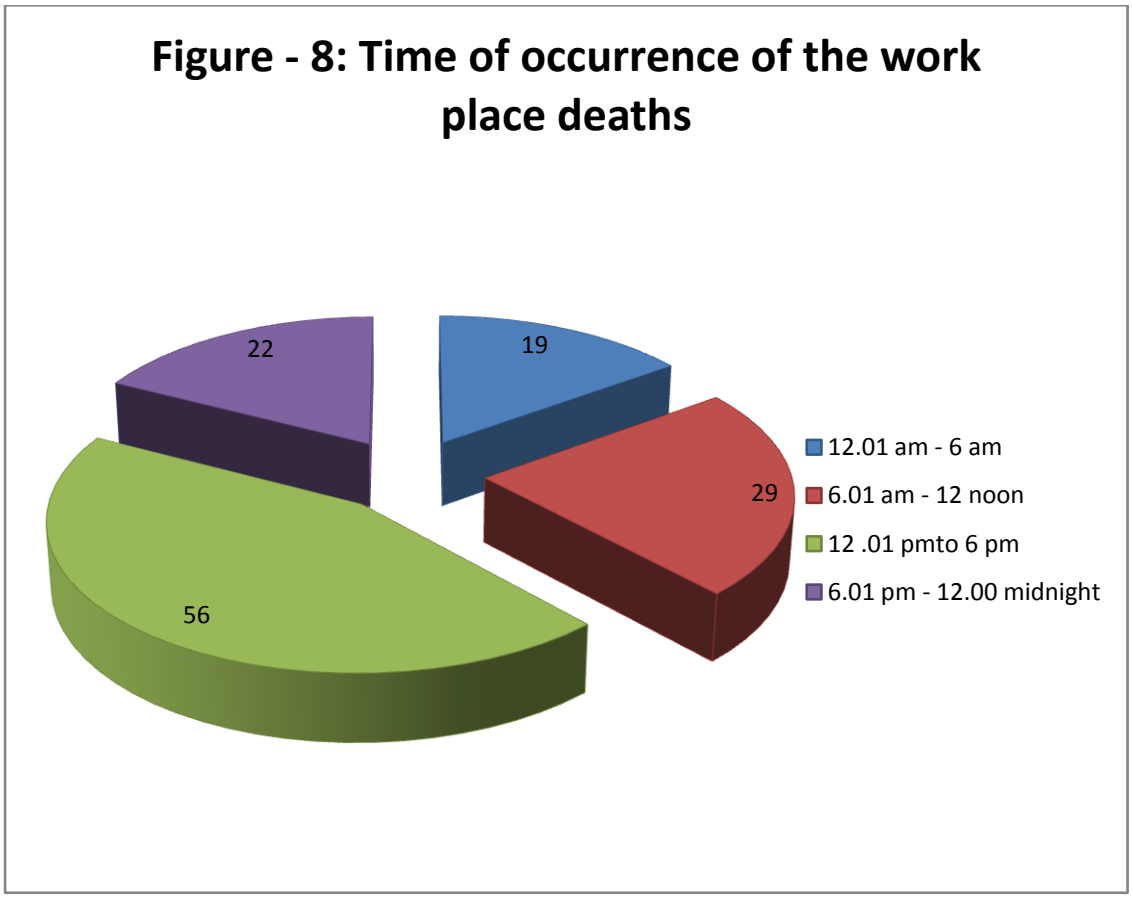


TABLE-9: SEASON OF OCCURENCE

Season of occurrence	Total No. of work place deaths	Percent
Summer	**63**	**50.0**
Rainy	24	19.0
Winter	18	14.3
spring	21	16.7
total	126	100.0

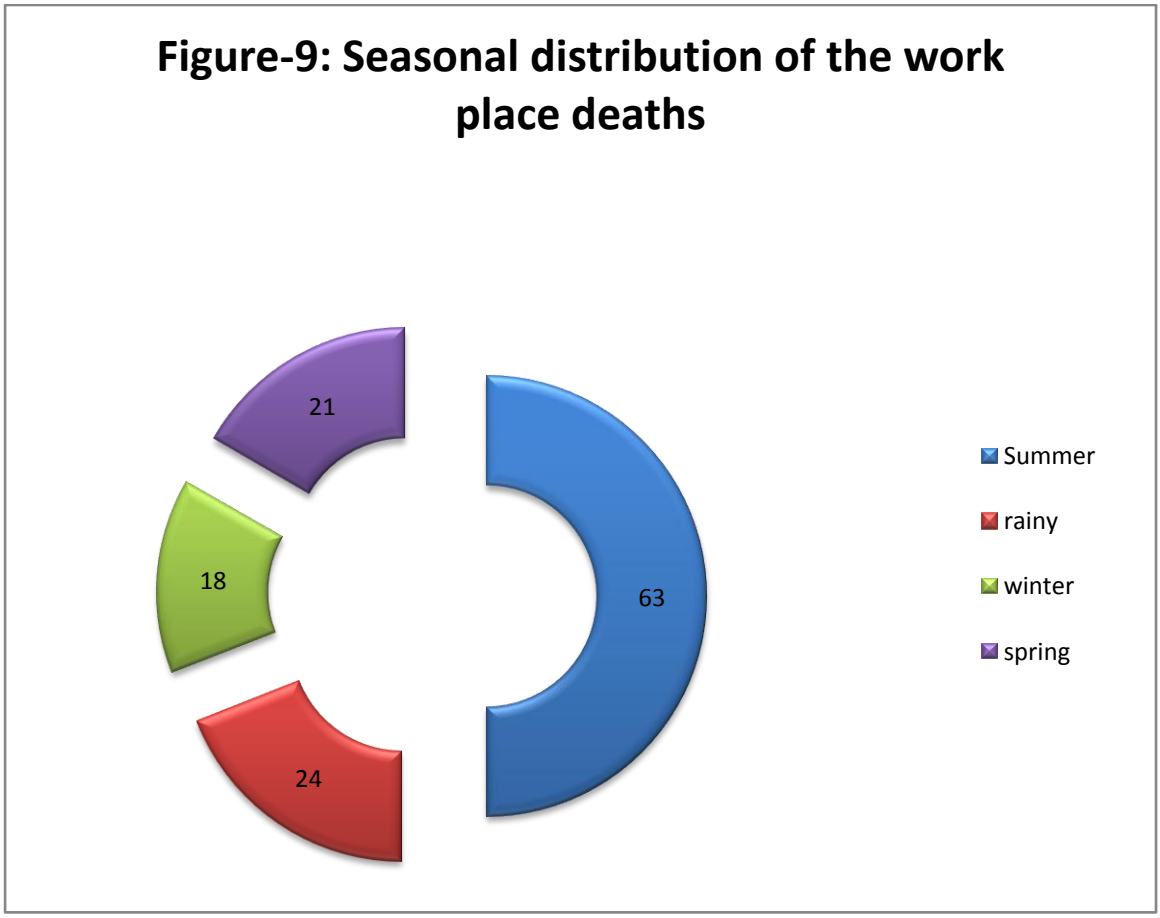


TABLE-10: TYPE OF OCCUPATION

Type of occupation	Total No. of work place deaths	Percent
AC Service Helper	1	0.8
Agriculture and Coolie	1	0.8
Binder	1	0.8
Building worker	1	0.8
Business	1	0.8
child labourer	1	0.8
Coffee shop owner	1	0.8
Contractor	1	0.8
Cooley	25	19.4
Cracker Business	1	0.8
Daily wager	1	0.8
Dosa master	1	0.8
Driver	3	2.4
Duck rearing	1	0.8
Electrician	2	1.6
Engineer	1	0.8
Farmer	1	0.8
hotel in charge	1	0.8
house wife	3	2.4
Skilled Labourer(Hard working)	**26**	**20.8**
Lorry Driver	1	0.8

Maid	1	0.8
Mason	4	3
Match box worker	2	1.6
Painter	7	5.6
Pipe Machine Operator	1	0.8
Pizza delivery boy	1	0.8
Plumber	3	2.4
Private Security	2	1.6
Retired	5	4
Roomboy	1	0.8
Security	1	0.8
shop owner	1	0.8
Student	8	6.4
studio owner	1	0.8
Supervisor	1	0.8
Sweeper	1	0.8
Tailor	1	0.8
Technician	1	0.8
Unemployed	4	3.2
Watchman	1	0.8
Welder	4	3.2
Total	126	100

Figure-10: TYPE OF OCCUPATION

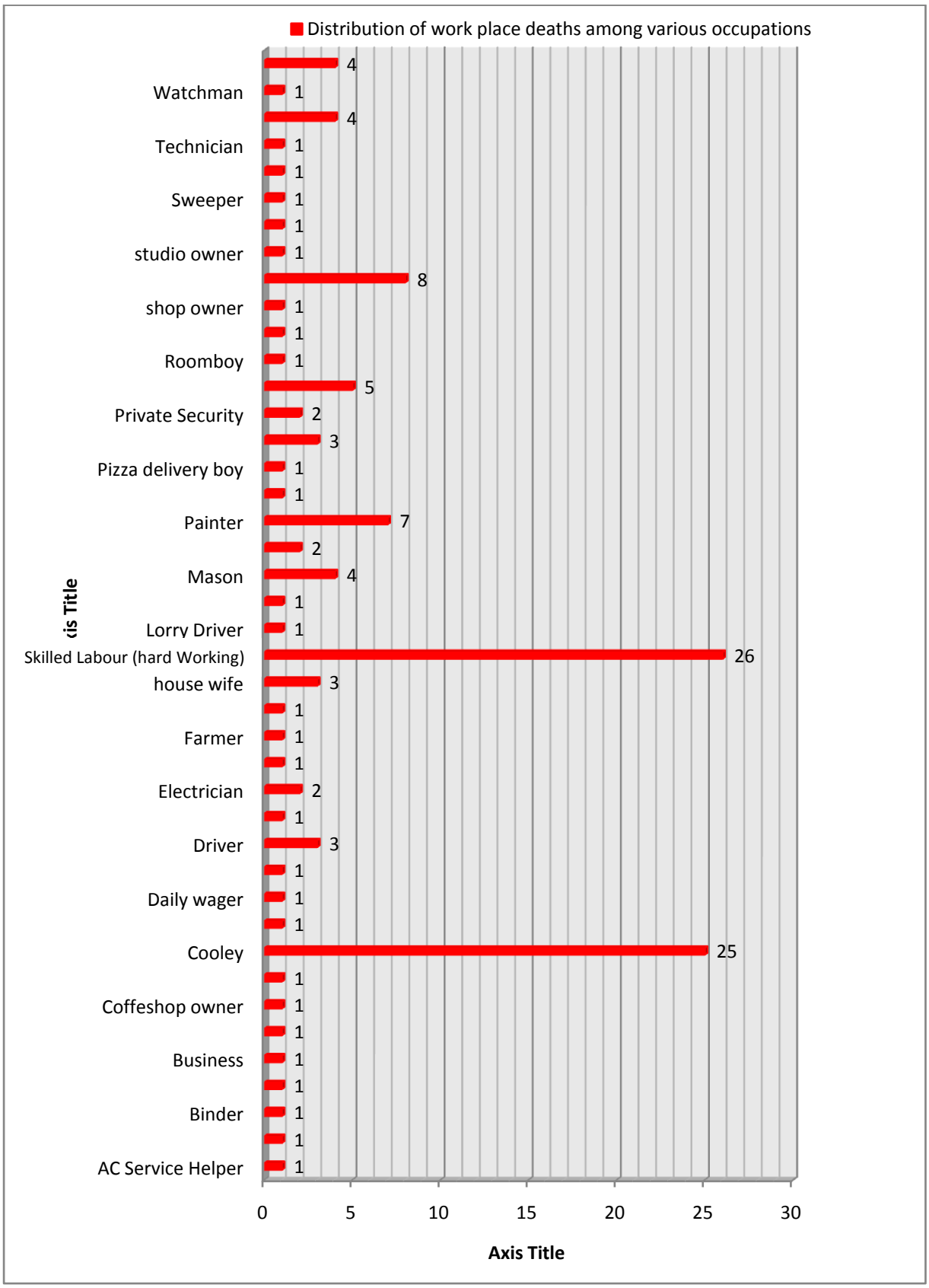


TABLE-11: METHOD OF OCCURENCE

Method of occurence	Total No. of work place deaths	Percent
Crackers bursting	2	1.6
Cardiac cause	2	1.6
Electric shock	**46**	**36.6**
Fall from height	29	23
Fire accident	1	0.8
Hanging	1	0.8
Heat boiler accident	1	0.8
Lightning strike	1	0.8
Match stick factory	37	29.2
Object fall in workplace	1	0.8
poisoning	1	0.8
suffocation	4	3.2
Total	126	100

Figure-11: METHOD OF OCCURENCE:

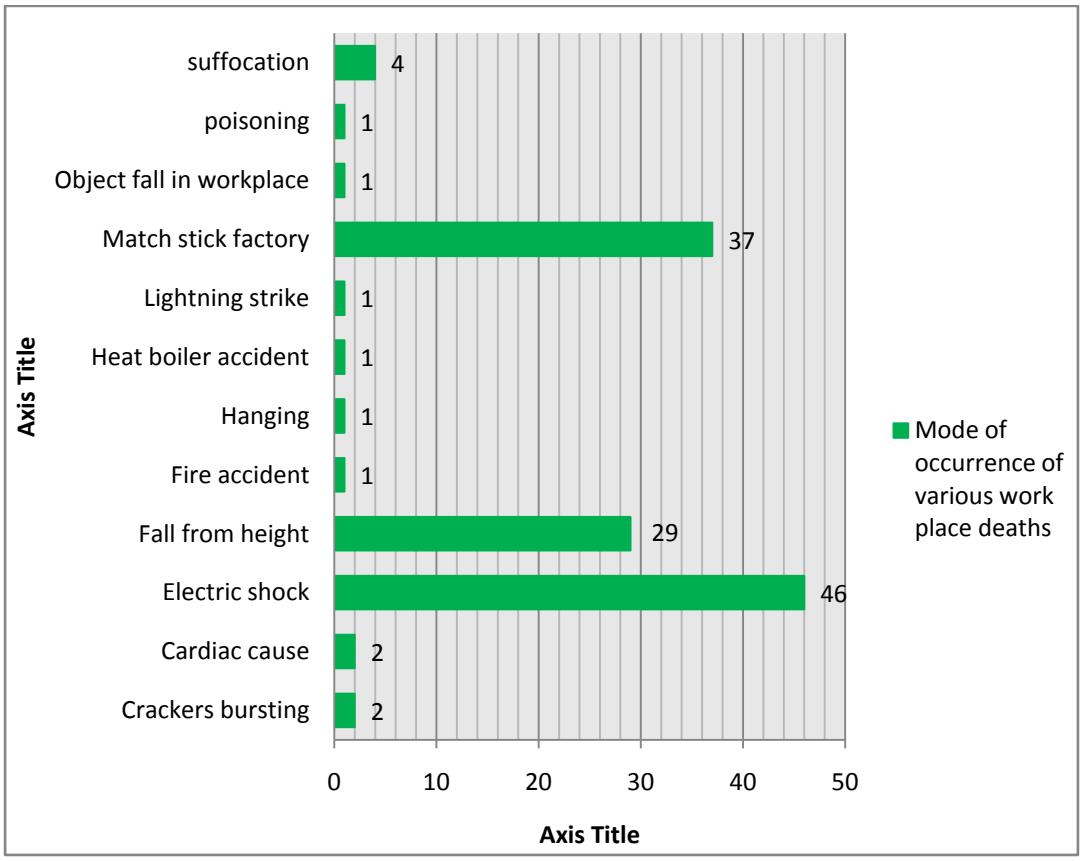


TABLE-12: TIME SINCE DEATH

Time since death	Total No. of work place deaths	Percent
Upto 6 hours	**48**	**38.1**
6 – 12 hrs	28	22.2
12-24 hrs	36	28.5
24-36 hours	9	7.1
More than 36 hours	5	3.9
Total	126	100

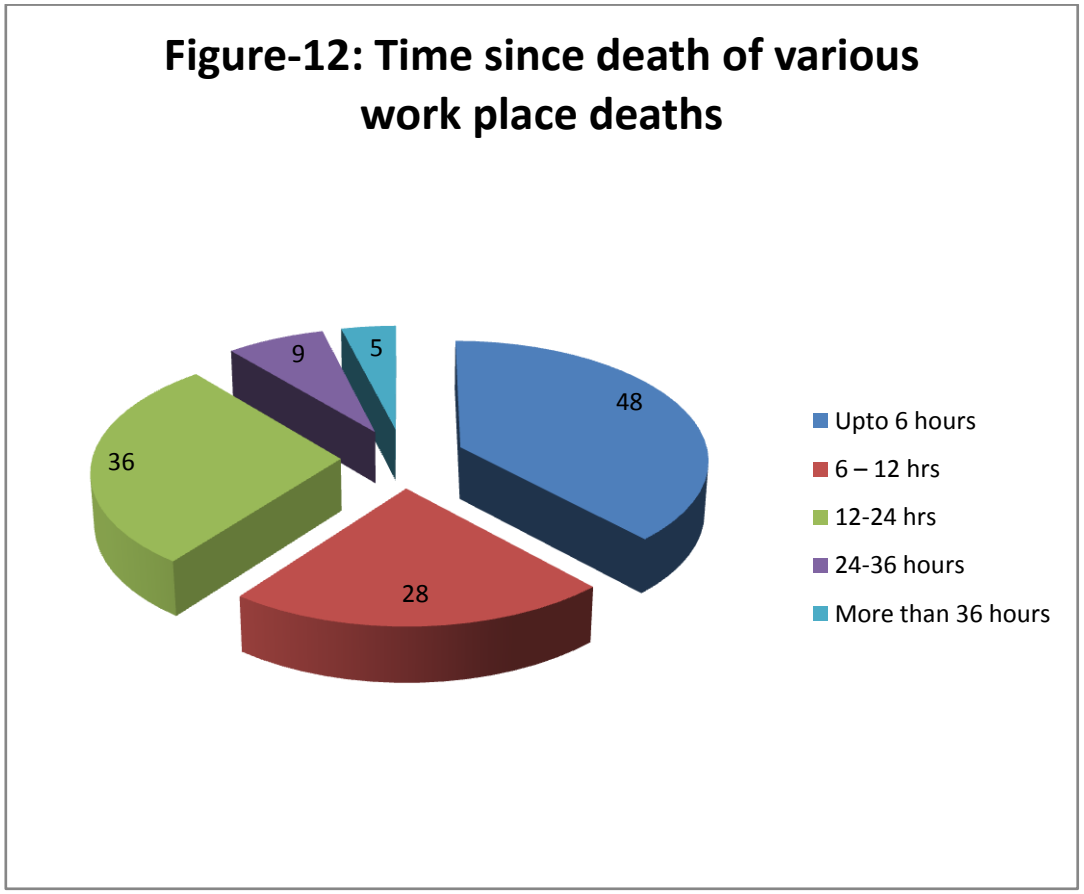


TABLE-13: CAUSE OF DEATH

Cause of death	Total No. of work place deaths	Percent
Asphyxia due to hanging	1	0.7
Electrocution	12	9.5
Neurogenic shock due to burns	18	14.2
Septicemic shock due to burns	32	25.3
Shock & hemorrhage due to multiple injuries	**33**	**26.1**
Intracranial hemorrhage due to head injury sustained	20	15.8
Snake strike	1	0.7
Alprazolam poisoning	1	0.7
Coronary artery disease	2	1.5
Lightning	1	0.6
Traumatic asphyxia	1	0.7
Asphyxia due to carbon monoxide poisoning	4	3.1
Total	126	100.0

Figure-13: Cause of death of various work place deaths

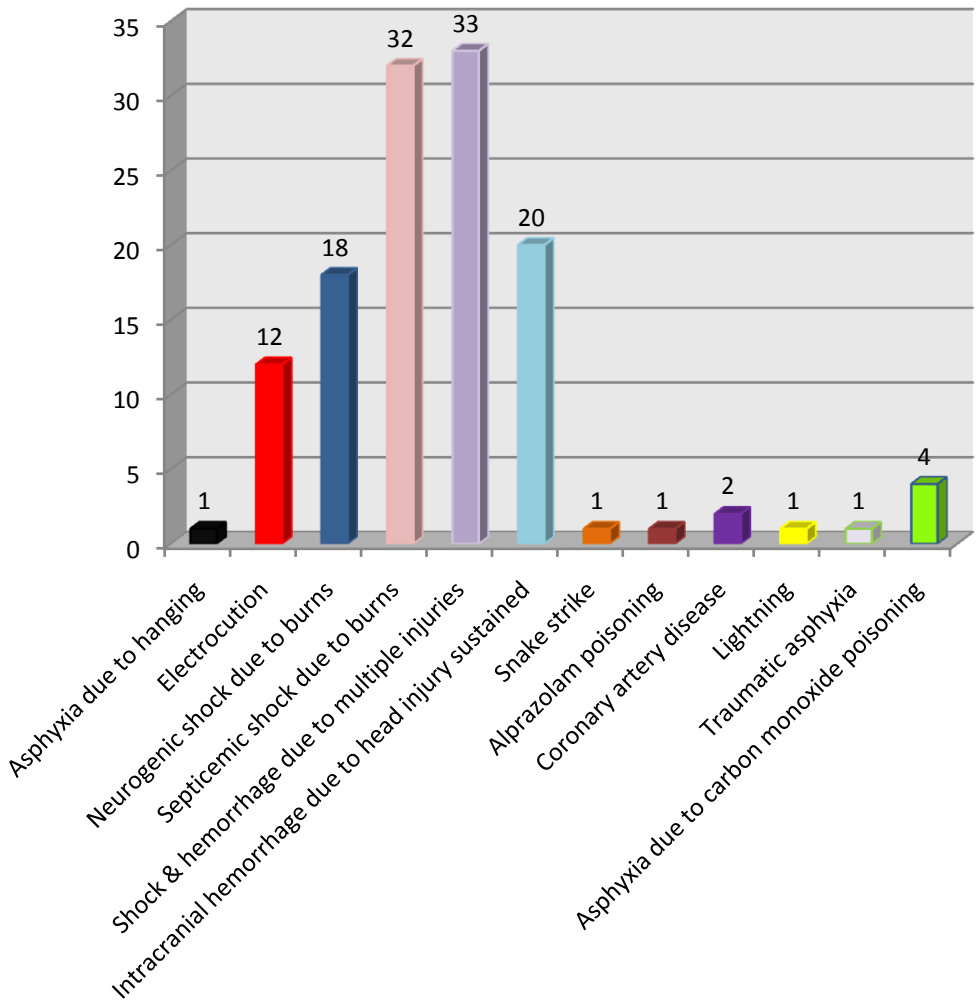
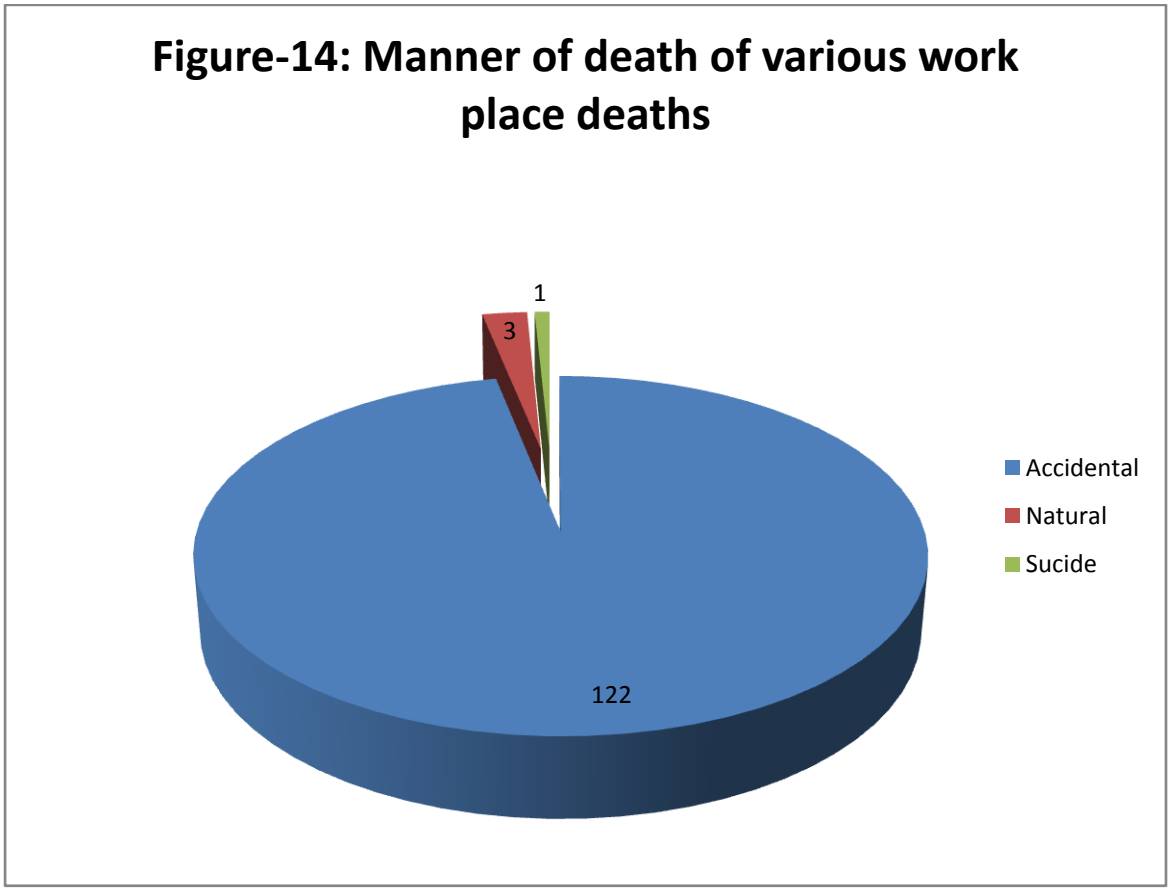


TABLE – 14: MANNER OF DEATH

Manner Of Death	Total No. of work place deaths	Percent
Accidental	**122**	**96.8**
Natural	3	2.4
Suicide	1	0.8
Total	126	100



POST – MORTEM PHOTOGRAPHS PERTAINED TO WORKPLACE DEATHS

BURNS INJURIES IN MATCH STICK FACTORY

SEPTICAEMIA DUE TO BURNS

ENTRY WOUND IN ELECTROCUTION

EXIT WOUND IN ELECTROCUTION

HEAD INJURY IN FALL FROM HEIGHT

DISCUSSION

Maximum deaths occurred in the age group of 21-30 years (35 Cases) Which constitutes 28% among the total deaths followed by age group between 41-50 Years (29) Cases which constitutes to 23.1% of the total deaths. Where are is in the study conducted by Olivia S.Mitchell age group above 65 years were more prone to death at work place which is different when compared to my study. This indicates that most of the work place deaths were due to natural death in the study conducted by Olivia S.Mitchell where as in my study most of the deaths were accidental.[33]

Most predominant sex affected is Males (112 Cases) which constitutes 88.9% of the total deaths. In the study conducted By Sachil Kumar, Anoop K. Verma also indicated the predominant sex involved is males in work place deaths. This clearly indicates that skilled and difficult works in factories are done by males and more or less they become the host for the livelihood of their family.[37]

Most Predominant religion belongs to Hindu Religion (107 Cases) which constitutes 85% of the total deaths followed by Christian (8 Cases) and Muslim (8 Cases) religion which constitutes 6% each of the total deaths. No such study was made by others for comparison. However this study was made to show the proportion of deaths pertained to religion in India.

Regarding Marital Status number of deaths was observed more in married a person (75 Cases) who constitutes 59.5% of the total deaths. No such study was made by others for comparison. However this study will clearly emphasize that married people are at a higher risk factor pertained to workplace deaths because they are bound to work at any place and ready to take up any risk hazards for the benefit of the family. This explains the bonding relationship and concern of Indians regarding their families.

Regarding Socio Economic Status. Higher number of deaths were observed in Lower Class (106 Cases) which constitutes 84.1% among the total deaths followed by Lower Middle Class (15 Cases) which constitutes 11.9% of the total deaths. This is similar to the study conducted by G.Biswas and M.Ali were work place deaths were more in lower class (146 Cases) which is higher when compared to my study. This indicates that people in lower class are more prone to work place deaths because they go as daily wages do bonded labour and work even in high risk sector for their livelihood.

Number of brought dead cases (80 Cases) was higher which constitutes to 63.5% of the total deaths and treated cases were (46 Cases) which constitutes 36.55 of the total deaths. Where as in the study conducted by SG Gerberich, TR Church at Minnesota number of brought dead cases were only 6 % of the total deaths. This indicates about the safety and preventive measures in various workplaces in abroad and the protocol SOP (Standard Operating Procedures)

followed in the respective workplaces which we are deficient in the most of the work places at india.[34]

Pertained to period of survival 13 deaths occurred in 6-12 hours which constitutes 28.2 % of the total death followed by 10 deaths in 12-24 hors which constitutes 21.7% of the total deaths. Whereas as in the study conducted by MS Geisser, AD Ryan, GD Walt. Number of mortality pertained to workplace deaths were only 13%. This indicates the infra structure and quality of tertiary care hospitals. The most common problem encountered in India is the tertiary care hospital is situated far away from the occupational sector places which cause difficulty in treating the victimised patients thereby resulting in a delay for the treatment. [34]

Most of the deaths occurred during 12.01 P.M to 6.00 P.M (56 Cases) which constitutes 44.44% of total deaths followed by 6.01 A.M to 12.00 P.M (29 Cases) which constitutes 23.02% of the total deaths. Where as in the study conducted by G.biswas, Ravi Shankar 6.00 A.M to 12.00 P.M was the fatal time which constitutes 27% of the total deaths. This indicates day shift or day time is more dangerous when compared to that of night time or night shift. This increased mortality in day time may be attributed to the climate – hot climate in the areas of different workplace[37]

Most of the deaths occurred in summer season (63 Cases) which constitutes 50% of the total deaths followed by rainy (24 Cases) which constitutes 19% of the total deaths. Where as in the study conducted by Uma

Shankar Singh most of the deaths occurred in rainy and winter season which constitutes 58% of the total deaths due to electrocution. However in his study deaths due to electrocution was only taken in into account which is not similar to my study where all occupational related deaths were taken into account. This also includes working in boilers alloy factory etc where more heat is generated and Chennai summer with more humidity which causes dehydration and excessive sweat making the areas wet suitable for electrocution could be a reasonable cause for more number of electrocution deaths pertained to workplace.[37]

Most of the deaths were observed in skilled labourers (hard working) (26 Cases) which constitutes 20.8% of the total deaths followed by Cooly (25 Cases) which constitutes 19.4% of the total deaths. This is similar to the study conducted by Dana P. Loomis, David B. Richardson where most of the deaths occurred in the construction labourers which constitutes 26% of total deaths. This clearly indicates the risk involved in construction related work place. So proper preventive measures and a standard operating procedure has to be set world to prevent construction related workplace deaths. [33]

Regarding the method of occurrence more number of deaths were seen in electric shock (46 Cases) which constitutes 36.6% of the total deaths followed by match stick factory accidental burns (37 Cases) Which constitutes 29.2% of the total deaths. Where as in the study conducted by Dana P.Loomis, David B.Richardson Motor vehicle accidents was higher which constitutes

26.9% of total deaths followed by Falling objects. This clearly explains about the safety measures to be kept in mind while operating machineries at workplace which people lack or the negligence of safety officer employed in various work places.[33]

Regarding Time Since Death less than 6 hours was high (48 Cases) which constitutes 38.1% of the total deaths followed by 12-24 hours (36 Cases) which constitutes 28.5 % of the total deaths. No similar study pertained to Time since Death was done by others. This analysis was done by me to rule out any time related artefacts / changes in the dead body. Cautious features pertained to time since death was taken into account and the injuries and other factors pertained to work related deaths were examined.

Regarding the Cause of Death Shock and Haemorrhage due to multiple injuries sustained (33 Cases) was high which constitutes 26.1% of the total deaths followed by septicaemic shock (32 Cases) which constitutes 25.3% of the total deaths. Where as in the study conducted by Dilip Kumar, Aravind Kumar Patel 69 % of the deaths were due to accidental fall in the construction with head injury. Where as in my study shock and haemorrhage due to multiple injuries was on a higher stake. This could be attributred various occupational machinaries employed at various workplace and the work style of workers at various work places.[38]

Regarding the manner of death (122 Cases) were accidental deaths which constitutes 96.8% of total deaths followed by natural deaths (3 Cases)

which constitutes 2.4% of the total deaths. followed by septicaemic shock (32 Cases) which constitutes 25.3% of the total deaths. Where as in the study conducted by Dilip Kumar, Aravind Kumar Patel accidental deaths were more which attributed to 69% of the total deaths. The reason is only workplace deaths pertained to construction was only taken into account in the study conducted by Dilip Kumar. Where as in my study all the occupational workplace industries / sectors were take into account which concluded that accidental deaths were more common among the others. Hence proper safety precaution has to be taken into account to prevent forthcoming accidental deaths in various work places.[38]

SUMMARY

1. Maximum deaths occurred in the age group of 21-30 years (35 Cases) Which constitutes 28% among the total deaths followed by age group between 41-50 Years (29) Cases which constitutes to 23.1% of the total deaths.
2. Most predominant sex affected is Males (112 Cases) which constitutes 88.9% of the total deaths.
3. Most Predominant religion belongs to Hindu Religion (107 Cases) which constitutes 85% of the total deaths followed by Christian (8 Cases) and Muslim (8 Cases) religion which constitutes 6% each of the total deaths.
4. Regarding Marital Status number of deaths was observed more in married a person (75 Cases) who constitutes 59.5% of the total deaths.
5. Regarding Socio Economic Status. Higher number of deaths were observed in Lower Class (106 Cases) which constitutes 84.1% among the total deaths followed by Lower Middle Class (15 Cases) which constitutes 11.9% of the total deaths.
6. Number of brought dead cases (80 Cases) was higher which constitutes to 63.5% of the total deaths and treated cases were (46 Cases) which constitutes 36.55 of the total deaths.
7. Pertained to period of survival 13 deaths occurred in 6-12 hours which constitutes 28.2 % of the total death followed by 10 deaths in 12-24 hors which constitutes 21.7% of the total deaths.

8. Most of the deaths occurred during 12.01 P.M to 6.00 P.M (56 Cases) which constitutes 44.44% of total deaths followed by 6.01 A.M to 12.00 P.M (29 Cases) which constitutes 23.02% of the total deaths.
9. Most of the deaths occurred in summer season (63 Cases) which constitutes 50% of the total deaths followed by rainy (24 Cases) which constitutes 19% of the total deaths.
10. Most of the deaths were observed in labourers (26 Cases) which constitutes 20.8% of the total deaths followed by Cooly (25 Cases) which constitutes 19.4% of the total deaths.
11. Regarding the method of occurrence more number of deaths were seen in electric shock (46 Cases) which constitutes 36.6% of the total deaths followed by match stick factory accidental burns (37 Cases) Which constitutes 29.2% of the total deaths.
12. Regarding Time Since Death less than 6 hours was high (48 Cases) which constitutes 38.1% of the total deaths followed by 12-24 hours (36 Cases) which constitutes 28.5 % of the total deaths.
13. Regarding the Cause of Death Shock and Haemorrhage due to multiple injuries sustained (33 Cases) was high which constitutes 26.1% of the total deaths followed by septicaemic shock (32 Cases) which constitutes 25.3% of the total deaths.
14. Regarding the manner of death (122 Cases) were accidental deaths which constitutes 96.8% of total deaths followed by natural deaths (3 Cases) which constitutes 2.4% of the total deaths.

CONCLUSION

The above results from regression, correlation and the GLM, prove that there is an inverse correlation between the mortality rates in the construction industry and year mortality rates have decreased over time. Rates of injury and safety events have decreased. Overall since 2004, so we can say that the construction industry in the U.S is becoming safer, even though there were more deaths per fulltime employees in the construction industry as compared to other industries in 2014. We can also say that safety programs and other initiatives taken by contractors to keep their workplaces safe seem to be working. We now know that falling from height has been the major reason behind mortality rates in construction.

Contact with Equipment has the most significance in bringing the overall mortality rate down. Violence does not seem to change much over the period of time. The researcher suggests that more research could be carried out in that area in an effort to significantly reduce fatalities in the construction industry. One limitation of this study can be accounted for by the inherent locality characteristic of safety climate. Although regulations vary by jurisdiction, the globalization of the construction industry and pressure from the public are leading contractors and international firms to use consistent safety practices at all of their sites.

Another limitation is that the data is self-reported to BLS, CFOI. Although strict protocols are in place so that employers provide true responses, it is a possibility that some of the responses are incorrect. However with that being said the data are very consistent with the findings 10 years ago, so this provides some measure of confidence in the results. In the methodology section, the main research objective was analyzed through a mixed method research strategy The data was collected from CFOI for the most recent10 years. A qualitative analysis was performed on the data which led to a quantitative analysis using statistical methods. The results from the statistical tests confirmed the trend which served as the basis to confirm the statement about the main research objective.

The significance of this study is that we are now able to recognize how the 7 listed categories of OSHA and how they are affecting the overall mortality rate. Contact with Equipment and exposure to harmful substances are the variables that have the most significance in bringing the overall mortality rate down. The variable violence does not seem to change much over the period of time and has no significant contribution to the mortality rate over the specified period. This study also allows us to focus now on those categories that are not contributing as significantly to affect the mortality rate and we need to have more studies and research done in those domains of safety and help bring their numbers down.

THE ECONOMICS OF OCCUPATIONAL SAFETY

Occupational disease and injury are part of the human and social costs of production. These are primarily the suffering and possibly life-long disadvantages of affected workers and their families. Furthermore, a large number of studies have demonstrated the high economic cost of accidents borne by enterprises and governments. Direct costs for enterprises, such as material damage and down time, and financial losses through experience-related insurance premium and a share of the medical expenses, are obvious.

In addition, hidden costs, such as overtime work made necessary by accidents, retraining expenses and intangible factors such as loss of company prestige and deteriorating industrial relations, may have a substantial impact on the quality and profitability of production. Some authors estimate these hidden costs for enterprises at several times the direct costs. Taking into account three overall cost factors consequential expenditure due to injury as well as to material damage production losses and administrative costs total economic costs of work accidents for society have been estimated as ranging from around 1 per cent of gross domestic product in the United Kingdom and the United States to a little above 3 per cent in France, without even accounting for expenditure on prevention

Using a different measure, studies by the International Labour Office have shown a ratio of accident insurance expenditure to total social security expenditures of between 3 and 7 percent. The costs of accidents may be

distinguished from costs of accident prevention. These include the work of staff administering and enforcing safety legislation, the financial cost of expenditure on safer equipment, and possible losses of productivity that may arise through constraints on working methods introduced for safety reasons.

A rational accident prevention policy is, of course, one whose costs are more than compensated by a reduction in the costs associated with actual accidents, such as loss of quality of human life and expenditure on treatment and rehabilitation.

There is widespread agreement in OECD Member countries on the need for government regulation to play a major role in this area; in fact, protection against work accidents has historically tended to be the first area of government intervention into the workplace. Such intervention has been based on the belief that the predominance of the private market would lead to socially unacceptable levels of occupational injury, disease and death.

There continue to be, however, sharply differing views among social scientists and safety experts concerning the extent to which market forces can be relied on to regulate occupational safety and the optimal extent of government control. Using a market paradigm, a number of authors criticise regulatory agencies' alleged failure to weigh sufficiently the costs imposed by their standards and ask for the substitution of economic incentives for state regulation. For example, it has been suggested that a special tax on injuries would prove superior to a reliance on standards and inspection.

Another major economic incentive may be provided by strengthening the "experience rating" of firms, i.e. the setting of workmen's compensation insurance premium according to company safety records. As several authors point out, theories favouring the private market for safety are based on unfulfilled assumptions. First, firms frequently do not have sufficient knowledge about the hidden costs of accidents to enable proper cost benefit accounting. Nor do they typically have enough experience with fatalities to be able to take preventive measures in all necessary areas.

Workers are also likely to underestimate the full costs of accidents, thus reducing the significance of the safety professional's slogan that "safety pays". In particular, younger workers may take higher risks because of increased pay, neglecting safety precautions in the process.

The long term costs of the accidents which result can be particularly high, and will inevitably be borne in part by the families of these younger workers and by society at large. Another major feature of the market paradigm seems equally questionable, i.e. the notions that "risk premium" fully compensate workers for additional hazards, while inducing employers to institute adequate safety measures.

In a society with no social provisions, such risk premium could be argued to be the method by which the market "regulates" safety. However, once societies provide care for individuals who are partly or totally incapacitated a situation typical of OECD countries risk premium agreed

between employers and employees will no longer reflect the full cost of injuries.

Concluding Remarks:

Sixteen thousand workplace fatalities, and over 10 million injuries yearly in OECD countries, are a strong reminder that numerous safety hazards continue to accompany modern work processes. Efforts at enterprise and public policy levels are undoubtedly still required to lower accident levels further. Besides a continuing emphasis on technological and engineering controls, behavioural approaches such as training and employee motivation and worker-man- agreement co operation should not be overlooked as important features of a successful hazard control policy

In addition, increasing importance is being put by safety professionals on an efficient accident analysis that traces back to its origin the chain of dysfunctions which have resulted in injury or death, including information on "near misses".

Over the next decades, new technology will, in all likelihood, continue to reduce the number of traditional jobs in manufacturing in addition, employment shifts away from such "high risk" industries as agriculture and mining will continue. However, new hazards emerge with new technologies and methods of working, such as robots and automated manufacturing systems.

The increased volume of storage and transport of hazardous material points to the increasing tendency towards a merging of occupational and environmental safety issues the repeated occurrence of major disasters involving both occupational deaths and environmental damage has, at least since the 1970s, sharpened interest in occupational safety hazards, especially those involving manufacturing, shipping and overall land transportation

The analysis has pointed to the need for comparable data in the area of occupational safety as an important basis for preventive action. Recommendations by the International Labour Office and the less far reaching guidelines developed by the OECD Social Indicators Programme are too often not followed.

Among the prerequisites for comparability are coverage of all paid employment and all sectors of economic activity common industry definitions and occupational classifications in occupational injury reporting an agreed minimum level of severity or minimum length of time lost for recording an injury agreement concerning the period after an accident during which subsequent death is to be attributed to the accident.

FUTURE RESEARCH

Through the development of this thesis, several topics and ideas emerged as raw material to be used by academia for the benefit of the construction industry. After SLR, the researcher concluded that there is much more information that may be obtained from the data. Next is a list of potential research topics for future research, which could benefit from the data:

1. When will construction industry lose its top spot as the industry with most fatalities.
2. Future cross sectional studies should be undertaken on a regular basis to track safety performance.
3. Studies in other jurisdictions could provide insight into ways in which regulatory environments affect safety performance.
4. Future research could also focus on benchmarking national and international safety culture indices. Finally, the next topics for future research came from the SLR process and further analysis.

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ANNEXURE- I

Proforma

NAME :

AGE :

SEX :

AREA :

OCCUPATION :

RELIGION :

MARRITAL STATUS :

SOCIO ECONOMIC STATUS :

PLACE OF OCCURANCE :

TIME OF OCCURANCE :

MONTHOF OCCURANCE :

TYPE OF INJURY :

TYPE OF FORCE OR WEAPON :

AREA OF INJURY :

TREATED OR BROUGHT DEAD :

DURATION OF HOSPITAL STAY :

TIME SINCE DEATH :

CAUSE OF DEATH :

MANNER OF DEATH :

ANNEXURE- II

Ethical committee clearance certificate

INSTITUTIONAL ETHICS COMMITTEE
GOVT. KILPAUK MEDICAL COLLEGE,
CHENNAI-10
Protocol ID. No. 04/2018 Meeting held on 08.01.2018

The Institutional Ethical Committee of Govt. Kilpauk Medical College, Chennai reviewed and discussed the application for approval "TWO YEARS STUDY OF WORK PLACE DEATHS AUTOPSIED IN GOVT.KILPAUK MEDICAL COLLEGE & HOSPITAL - CHENNAI" submitted by Dr.D.KARTHIK,Post Graduate in Forensic Medicine & Toxicology. Govt. Kilpauk Medical College, Chennai-10.

The Proposal is **APPROVED.**

The Institutional Ethical Committee expects to be informed about the progress of the study any Adverse Drug Reaction Occurring in the Course of the study any change in the protocol and patient information /informed consent and asks to be provided a copy of the final report.

DEAN
Govt. Kilpauk Medical College,
Chennai-10.

ME 1 Sec> Ethical Committee

ANNEXURE- III

Plagiarism certificate

URKUND

Urkund Analysis Result

Analysed Document:	TWO YEARS STUDY OF WORK PLACE DEATHS AUTOPSIED IN GOVERNMENT KILPAUK MEDICAL COLLEGE_2.docx (D42620362)
Submitted:	10/16/2018 1:20:00 PM
Submitted By:	dr.karthikmbbs@gmail.com
Significance:	3 %

Sources included in the report:

A STUDY OF DEATHS DUE TO RAILWAY ACCIDENTS AUTOPSIED IN GOVERNMENT KILPAUK MEDICAL COLLEGE & HOSPITAL, CHENNAI.docx (D31255570)
LANCY RODRIGUES.docx (D28616871)
https://en.wikipedia.org/wiki/Construction_site_safety
https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-14-720
http://en.wikipedia.org/wiki/Mayapuri

Instances where selected sources appear:

9

ANNEXURE- IV

Master chart

NAME	AGE	SEX	AREA	OCCUPATION	RELIGION	MARRITAL STATUS	SOCIO ECONOMIC STATUS	PLACE OF OCCURANCE	TIME OF OCCURANCE	MONTHOF OCCURANCE	TYPE OF INJURY	TYPE OF FORCE OR WEAPON	AREA OF INJURY	TREATED OR BROUGHT DEAD	DURATION OF HOSPITAL STAY	TSD	COD	MOD
Mickel	46	M	Thiruverkadu	Painter	Christian	Married	Lower Middle	Work Place (Construction Site)	3:30pm	04-04-16	Fall from Height		Multiple Injuries	B.D.		12-24 hrs	Shock and Hemorrhage Due to Multiple injuries	Accidental
Mani	53	M	Poonamalle	Mason	Hindu	Married	Lower Middle	Work Place (Construction Site)	2:30pm	04-06-16	Accident		Head	B.D.		12-24 hrs	Head Injury	Accidental
Ikkotdurai	49	M	Pattabiram	Coolie	Hindu	Married	Lower Middle	Work Place(Farm)	12:15pm	29/5/16	Electrical Burns			B.D.		12-24 hrs	Electrical Burns	Accidental
Kanagaraj	38	M	Gudiyatham	Match box worker	Hindu	Married	Lower Middle	Work place (Industry)	12:30pm	25/5/16	Accidental fire			Treated	~12 days	12-24 hrs	Complication due to septiceamia	Accidental
Anbalagan	60	M	Naaval village, Thiruvannamalai	Labourer	Hindu	Married		Thiruvallur district	4:30am	05-02-16	Fang mark in right foot (Farmer)		Dorsum of right foot	Treated	4 days	12-24 hrs	Snake Bite	Accidental
Shachidul Islam	21	M	No.76, Kalkasi district, Assam	Pipe Machine Operator	Muslim	Unmarried		Annanagar	8:00am	05-04-16	Electrical Burns		Inner aspect of right hand	B.D.		12-24 hrs	Electrocution	Accidental
Apparao	38	M	Vishakhapattanam, Andhra	Labourer	Hindu	Married		Padi	12:30 PM	05-07-16	Multiple abrasions		Left eye, front of abdomen, contusion of scalp	B.D.		12-24 hrs	Shock and Hemorrhage Due to Multiple injuries	Accidental
Eshwari	27	F	Gudiyatham	Match box worker	Hindu	Married		Bhuvaneswaripettai (Industry)	12:30pm	25/5/16	Accident		Face, upper limb, abdomen,right and left leg	Treated	3 days	12-24 hrs	Death due to burns	Accidental
Ramesh	40	M	s/o Sarasanthan, Vannankudikadu, Virudhachalam(Tk), Cuddlore district	Agriculture and Coolie	Hindu	Married		Vettakudi Main Road	12:00pm	19/12/15	Electrical Burns		Head, face , neck, chest, both legs	Treated	13 days	12-24 hrs	Shock due to electrocution	Accidental
Manikandan	27	M	Purasaiwalkam	Coolie	Hindu	Unmarried		Koyembedu		05-10-16	Electrical Burns		Right thumb, nose, right side neck, right lower chest and abdomen	B.D.		12-24 hrs	Shock due to electrocution	Accidental
Kandan @ Cracker Kandan	45	M	s/o Venmani, Pudunagar, Chinnakalapettu, Puducherry.	Cracker Business	Hindu	Married		Kandan's Home	5:15 to 5:30pm	06-03-16	Burns	Crackers	Burns all over the body	Treated	1 day	12-24 hrs	Shock due to burns	Accidental
Moorthy s/o Ramasamy	44	M	74, C-block, SM Nagar, Chetpet.	Private Security	Christian	Married	Lower Class	Narathaganagasabavilas, TTK road, Alwarpet< Chennai.	3:30pm	22/2/16				B.D.		12-24 hrs	Cardiac Tamponade	Natural
Govindan	62	M	s/o Balan, No; 319/18, GKM Colony, 18th Street, Subramaniyam Street, Chennai-82.	Labourer	Hindu	Married	Lower Class	No:21, Sankaramadam Street, Durgatharani Constructions , Perambur.	11:10am	08-01-16	Reddish-brown gaze abrasions and laceratins	Fall from height	Outer aspect of right thigh, outer aspect right chest, occipital region.	B.D.		12-24 hrs	Head Injury	Accidental
Neelakandan	28	M	No: 29, Veerapandi Reddiyarpalayam Street	Labourer	Hindu	Married	Lower Class	Ayyampalayam Colony, Govt School Construction site	4:00pm	06-03-16	Multiple infected epidermal and dermo-epidermal burns	Electric shock	Burns all over the body	Treated	6 days	12-24 hrs	Septic Complications of electric burns	
G. Boopalan	35	M	s/o Govindharaj, No. 174, Road Street, Yegambaranallur	Labourer	Hindu	Married	Middle Class	Katharikuppam Road	6:15pm	Jan-16	Multiple burns all over	Electric shock	Burns all over the body	Treated	7 days	12-24 hrs	Septic Complications of	Accidental

			post, Valaja Taluk								the body						extensive burns	
Vinod Kumar	22	M	s/o Murugan, Vadukathir village, Kunnathur post,Krishnagiri	Coolie	Hindu	Unmarried		Srivani Sweets & Bakery, RS Road	1:30pm	31/5/16	Burns		Burns all over the body	Treated	4-6 hrs	12-24 hrs	Shock due to extensive burns	Accidental
Kummathamma	42	F	Pothur	Duck rearing	Hindu	Married	Lower Middle	Pulalerikarai	2:30pm	28/7/16	Burns	Lightning strike	Burns all over the body	B.D.		12-24 hrs	Burns due to lightning strike	Accidental
Amirthalingam	25	M	Chinnakalapet, Puducherry	Coffeshop owner	Hindu	Unmarried		Kandan's Home	5:15 to 5:30pm	06-03-16	Burns	Crackers	Burns all over the body	Treated	1 day	12-24 hrs	Shock due to burns	Accidental
Vaithiyalingam	43	M	Aalandur	Coolie	Hindu	Married		Client's house		06-06-16	Fall from Height			B.D.		12-24 hrs	Fall from height	Accidental
Karthick	19	M	Koyembedu	Pizza delivery boy	Hindu	Unmarried	Lower Middle	Work place (Client's house)	5:30pm	27/2/16	Electrical Burns			B.D.		12-24 hrs	Lung Injury	Accidental
Kalam	20	M	Sriperamputhur	AC Service Helper	Muslim	Unmarried	Lower Middle	Work place (Client's house)	6:30pm	28/1/16	Electrical Burns			Treated	98 days	12-24 hrs	Complication due to electrical burns-septiceamia	Accidental
Parasuraman	49	M	Shenoy Nagar	Painter	Hindu	Married	Lower Middle	Work place (Construction site)		29/2/16	Fall from Height		Chest, Spine, Abdomen	Treated	~1 hr	12-24 hrs	Shock and Hemorrhage Due to Multiple injuries	Accidental
Mujibur Rahman	22	M	Assam	Daily wager	Muslim	Unmarried	Lower Middle	Chennai		28/6/16	Fall from Height		Chest injury left lung	B.D.		12-24 hrs	Shock due to multiple injuries	Accidental
Istalingam	50	M	Kundrathur, Chennai- 69	Lorry Driver	Hindu	Married	Lower Middle	Virugampakkam	8:30pm	07-12-16	Electrical Burns	Current	Burns all over the body	B.D.		12-24hrs	Shock due to burns	Accidental
Pankaj Shah	32	M	Bihar	Building worker	Hindu	Unmarried	Upper Middle	Nolambur		28/6/16	Fall from Height		Fracture right frontal parietal regionof head	B.D.		12-24 hrs	Shock and hemorrhage Due to sustained head injury	Accidental
Rajaram	19	M	Janapadh Chandruli District, Uttar Pradesh	Labourer	Hindu	Unmarried	Lower Middle	Appollo Hospital	8:42pm	07-05-16	Accidental fire	Fire	Burns all over the body	Treated	3 days	12-24 hrs	Complications of SCALDS-Septiceamia	Accidental
Rajini	30	M	Otteri, Chennai	Painter	Hindu	Married	Middle Class	Otteri		25/7/16	Fall from Height		Fracture of both parietal bones	B.D.			Shock due to multiple injuries	Accidental
Amaresh Kumar	23	M	Bihar	Coolie	Hindu	Unmarried	Lower Class	ESI Quarters, sterling Road, Nungambakkam	11:00am	Sep-16	Fall from Height		Multiple abrasions over neck, face, chest; Deep scalp contusion 6x6 cm; Laceration 3x1 cm over forehead	B.D.			Head Injury	Accidental
Langesh	20	M	Udayar Athur, Karnataka	Coolie	Hindu	Unmarried	Lower Class	Sothupakkam	10:45pm	05-01-16	Heat burns	Heat boilers	Burns over abdomen, chest and both legs	Treated	1 month		Shock due to burns-Septiceamia	Accidental
Bharathi	30	F	Gudiyatham	Coolie	Hindu	Married	Lower Class	Bhuvaneshwari Street, Sonali matchworks	12:30pm	May-16	Accidental fire	Match stick factory	Wound over face, neck, chest, abdomen, upper limb, lower limb	Treated	6 days		Shock due to burns-Septiceamia	Accidental
Lakshmiammmal	63	F	Ambathur	Sweeoper	Hindu	Married		Central ware-house, Ambathur	4:00pm	08-05-16	Blunt injury abdomen	Object fall in workplace	Abdomen	B.D.			Shock due to Injury	Accidental
Tamilselvam	67	M	Onathanadu, Thanjavur	Supervisor	Hindu	Married	Lower Class	Aiya Bhavan Hotel, Avadi	3:45pm	2016 aug	Fall from Height		Occiput	B.D.			Head Injury	Accidental
Victor	39	M	R.N. Kandigai, Kanchipuram	Mason	Christian	Married	Middle Class	Otteri, ESI Quarters	4:00pm	19/8/16	Electrical Burns	Electric shock	Abrasions over right forearm and right foot	B.D.			Electrocution	Accidental

S. No.	PM NO	NAME	AGE	SEX	AREA	OCCUPATION	RELIGION	MARRITAL STATUS	SOCIO ECONOMIC STATUS	PLACE OF OCCURANCE	TIME OF OCCURANCE	MONTHOF OCCURANCE	TYPE OF INJURY	TYPE OF FORCE OR WEAPON	AREA OF INJURY	TRT OR BROUGHT DEAD	DURATION OF HOSPITAL STAY	TSD	COD	MOD
1	1553/17	kalayarasan	40	m	alandur	dosamaster	H	M	lower	nungabakkam	8 30 pm	14/7/17	head injury	FFH	mulitiple injury	BD			pending	ACC
2	1541/17	santhakumar	20	m	virudhunagar	painter	H	unM	lower	sengundram	2 30 pm	07-09-17	burns	electric shock	all over body	TRT			electrocution	ACC
3	1538/17	stalin	60	m	otteri	labourer	C	unM	lower	otteri	7 30 pm	07-11-17	burns	electric shock	nil	TRT			electrocution	ACC
4	1518/17	diwakar	21	m	ayanapakkam	labourer	H	unM	lower	athipattu	10 00 am	07-10-17	burns	electric shock	nil	BD			electrocution	ACC
5	1527/17	kandeepan	43	m	villupuram	labourer	H	M	lower	nungabakkam	4 30 pm	07-10-17	shock	electric shock	nil	BD			electrocution	ACC
6	1535/17	arumugam	45	m	kesavapuram	driver	H	M	lower	oragadam	10 20 am	07-11-17	shock	electric shock	nil	TRT			electrocution	ACC
7	1451/17	krishnaprasad	42	m	nepal	roomboy	H	M	lower	purasawalkam	4 00 am	07-02-17	shock	electric shock	nil	BD			electrocution	ACC
8	1287/17	raj kannu	28	m	villivakkam	cooley	H	unM	lower	villivakkam	11 30 pm	07-12-17	head injury	FFH	mulitiple injury	BD			pending	ACC
9	1276/17	deepak marak	22	m	patravakkam	cooley	C	unM	lower	padi	12 00 am	06-11-17	blunt injury	FFH	mulitiple injury	BD			blunt injury	ACC
10	1242/17	thirunamagan	68	m	arumbakkam	unemployed	H	M	lower	arumbakkam	6 30 am	06-07-17	head injury	FFH	mulitiple injury	BD			shock	ACC
11	1196/17	subrahmaniyan	46	m	arumbakkam	plumber	H	M	lower	madurovayal	5 00 am	06-01-17	head injury	FFH	mulitiple injury	TRT			shock	ACC
12	1160/17	prabinswain	48	m	ganjam dist	cooley	H	M	lower	avadi	10 30 am	29/5/17	head injury	FFH	mulitiple injury	BD			shock	ACC
13	1154/17	selvaraj	43	m	kolathur	electrician	H	M	lower	nungabakkam	3 45 pm	27/5/17	head injury	FFH	mulitiple injury	BD			head injury	ACC
14	1139/17	suresh	32	m	andhra pradesh	hotel incharge	H	M	lower	koyambedu	5 30 am	27/5/17	burns	electrical burns	all over body	BD			electrical burns	ACC
15	1587/17	jeeva	18	m	royapuram	cooley	H	unM	lower	beach station	4 30 pm	16/7/17	burns	electric shock	all over body	TRT			shock	ACC
16	1007/17	sivakumar	25	m	villupuram	cooley	H	unM	lower	pallikaranai	4 30 am	05-04-17	burns	electrcial burns	all over body	BD			pending	ACC
17	1573/17	palanisamy	57	m	namakkal	cooley	H	M	lower	puliyanthope	4 45 am	16/7/17	head injury	fall	mulitiple injury	BD			head injury	ACC
18	1301/17	prathap	36	m	nerkundram	cooley	H	M	lower	shakthi nagar	9 00 am	14/6/17	asphyxia	hanging	neck	BD			asphyxia	SU
19	1340/17	karthik	21	m	kolathur	tailor	H	unM	lower	kolathur	8 00 pm	19/6/17	electrocution	electric shock	nil	BD			electrocution	ACC
20	1049/17	mohan	38	m	padi	binder	H	M	lower	mogapair	10 45 am	16/5/17	shock	FFH	mulitiple injury	BD			shock	ACC
21	1015/17	shankar	48	m	sriramapuram	farmer	H	M	lower	sriramapuram	8 30 am	29/4/17	septicemia	electric shock	chest,lower limbs	TRT			septicemia	ACC
22	1022/17	brijesh	26	m	uttar pradesh	labourer	H	unM	lower	kattarva	4 30 pm	05-10-17	burns	accidental fire	all over body	TRT			burns	ACC
23	774/17	sasikumar	14	m	villivakkam	child labourer	H	unM	lower	dayalan nagar	7 00 am	04-10-17	electrocution	electric shock	chest,lower limbs	BD			electrocution	ACC
24	1006/17	santhosh	42	m	thirumulvayul	studio owner	H	M	lower	thiruvallur	1 30 pm	05-11-17	multiple injury	FFH	mulitiple injury	BD			multiple injury	ACC
25	979/17	sandiya	10	f	vadapalani	student	H	unM	lower	vadapalani	5 00 am	05-08-17	asphyxia	suffocation	nil	BD			asphyxia	ACC
26	978/17	sanjay	4	m	vadapalani	student	H	unM	lower	vadapalani	5 00 am	05-08-17	asphyxia	suffocation	nil	BD			asphyxia	ACC
27	977/17	selvi	45	f	vadapalani	maid	H	M	lower	vadapalani	5 00 am	05-08-17	asphyxia	suffocation	nil	BD			asphyxia	ACC
28	976/17	meenatchi	64	f	vadapalani	housewife	H	M	lower	vadapalani	5 00am	05-08-17	asphyxia	suffocation	nil	BD			asphyxia	ACC
29	782/17	U	45	m	U	U	U	U	U	villivakkam	2 00 pm 5/2/17	02-05-17	head injury	FFH	mulitiple injury	BD			head injury	ACC
30	1602/17	paramanandam	45	m	kodungiyoor	labourer	H	M	lower	korukupet	11 00pm	15/7/17	burns	accidental fire	chest	TRT			burns	ACC
31	996/17	saravanan	21	m	kottur	cooley	H	unM	lower	thoothipatu	7 40pm	05-07-17	septicemia	accidental fire	all over body	BD			septicemia	ACC
32	961/17	sundaramoorthy 38	38	m	padi	technician	H	M	lower	korattur	5 05 am	05-05-17	electrocution	electric shock	abdomen	BD			electrocution	ACC
33	932/17	balaraman	80	m	perambur	retired	H	M	lower	kolathur	11 00am	29/4/17	pending	electric burns	all over body	TRT			pending	ACC
34	921/17	krishnan	74	m	otteri	retired	H	M	lower	perambur	5 00am	05-02-17	shock	FFH	mulitiple injury	BD			shock	ACC
35	899/17	vignesh	20	m	pattabiram	watchman	H	unM	lower	otteri	5 15pm	30/4/17	electrocution	electrocution	all over body	BD			electrocution	ACC
36	893/17	gajendran	47	m	nerkundram	contractor	H	M	lower	pattabiram	1 00pm	25/4/17	poisoning	FFH	nil	TRT			poisoning	ACC

37	803/17	vijayakumar	35	m	villivakkam	plumber	H	M	lower	kaniyamman nagar	6 00pm	25/4/17	electrocution	electric shock	hand and foot	BD			electrocution	ACC
38	813/17	thyagarajan	48	m	avadi	labourer	H	M	lower	villivakkam	10 30am	14/4/17	electrocution	electrcic shock	nil	BD			electrocution	ACC
39	1439/17	prakash	35	m	thirupati	plumber	H	M	lower	avadi	7 45 am	04-12-17	septicemia	accidental fire	all over body	TRT			septicemia	ACC
40	1434/17	U	45	m	U	U	U	U	U	tirupati	11 00 am	16/6/17	electical burns	electric shock	all over body	TRT			electrical burns	ACC
41	1430/17	U	22	m	U	U	U	U	U	poonamalle	7 00am	29/5/17	hemorrhage	FFH	mulitiple injury	BD			hemorrhage	ACC
42	1391/17	dinesh kumar	33	m	villivakkam	cooley	H	M	lower	thiruvallur	7 00 m	22/6/17	electrical burns	electric shock	all over body	TRT			electrical burns	ACC
43	1392/17	surendran	82	m	virugambakkam	retired	H	unM	lower	padi	12 30 pm	25/6/17	head injury	FFH	mulitiple injury	BD			head injury	ACC
44	933/17	kalairasi	21	f	kolathur	labourer	H	unM	lower	kolathur	11 00 am	29/4/17	pending	electrocution	all over body	TRT			pending	ACC
45	1386/17	chiranjeevi	23	m	andhra pradesh	engineer	H	unM	upper	andhra pradesh	4 00pm	19/6/17	electrical burns	electrocution	all over body	TRT			electrical burns	ACC
46	1366/17	michael	30	m	meppur	painter	C	M	lower	sembarambakkam	9 30 am	21/6/17	electrical burns	electric shock	nil	BD			electrical burns	ACC
47	1388/17	jagadeesh	32	F	pattabiram	driver	H	unM	lower	avadi	6 30 am	19/7/17	shock	FFH	mulitiple injury	BD			shock	ACC
48	240/17	narayanan	30	m	kolathur	cooley	H	M	lower	kolathur	1 00pm	02-01-17	shock	electrical burns	all over body	TRT			shock	ACC
49	213/17	saravanan	36	m	thiruvallur	labourer	H	M	lower	thiruvallur	1 00pm	26/1/17	burns	accidental fire	all over body	TRT			septicemia	ACC
50	1//17	manikandan	47	m	pattabiram	cooley	H	M	lower	pattabiram	3 30 pm	31/12/17	accidental fall	accidental fall	mulitiple injury	BD			pending	ACC
51	555/17	chandra	55	f	poompugar nagar	labourer	H	M	lower	poombugar nagar	11 00pm	14/3/17	electrocution	electrical burns	abdomen	BD			electrocution	ACC
52	682/17	moovendan	25	m	ariyalur	driver	H	unM	lower	ariyalur	9 15pm	23/3/17	septicemia	electrical burns	all over body	TRT			septicemia	ACC
53	610/17	bikas	20	m	bihar	welder	H	unM	lower	patravakkam	11 00pm	19/3/17	electrocution	electrocution	palms	BD			electrocution	ACC
54	617/17	vijayakumar	52	m	kk nagar	electrician	H	M	lower	aminjikarai	3 30pm	20/3/17	electrocution	electrocution	upper limbs	BD			electrocution	ACC
55	664/17	sanjib	21	m	orissa	labourer	H	unM	lower	nerkundram	7 00pm	03-08-17	electrocution	electrical burns	all over body	TRT			electrocution	ACC
56	491/17	subrahmani	47	m	thirunindrivur	cooley	H	M	lower	thirunindirvur	9 00am	03-04-17	poisoning	poisoning	nil	BD			poisoning	ACC
57	767/17	mahendra	25	m	jarkhand	cooley	H	unM	lower	central station	12 40am	04-06-17	shock	accidental fire	all over body	TRT			shock	ACC
58	764/17	chikander	26	m	ayanpuram	buisness	M	M	lower	kolathur	7 00am	04-10-17	electrocution	electrocution	nil	BD			electrocution	ACC
59	1770/17	nithya	17	f	ambattur	student	H	unM	lower	ambattur	9 30am	08-08-17	crush injury	FFH	head injury	BD			head injury	ACC
60	1792/17	kuppusamy	58	m	avadi	labourer	H	M	lower	avadi	10 00pm	08-10-17	pending	fall	head injury	BD			pending	ACC
61	1757/17	subashree	40	f	kilpauk	house wife	H	M	lower	kilpauk	9 00am	08-06-17	crush injury	FFH	mulitiple injury	BD			multiple injury	ACC
62	1766/17	shivaji	45	m	sholinganallur	cooley	H	M	lower	kilpauk	11 40pm	08-06-17	burns	accidental fire	all over body	TRT			shock	ACC
63	1744/17	rajkumar	29	m	nasrathpet	shop owner	H	unM	lower	poonamalle	7 30pm	08-03-17	shock	electric shock	nil	BD			electrocution	ACC
64	1719/17	rafeequlislam	23	m	west bengal	cooley	M	unM	lower	chettiyar nagar	6 00 pm	31/7/17	head injury	FFH	head injury	BD			pending	ACC
65	1743/17	balaji	38	m	avadi	cooley	H	M	lower	avadi	11 00am	08-03-17	multiple injury	electrocution	mulitiple injury	BD			electrocution	ACC
66	1707/17	sethukumar	15	m	kerukambakkam	cooley	H	unM	lower	kerukambakkam	6 30pm	29/7/17	fractures	FFH	mulitiple injury	BD			shock	ACC
67	1711/17	thambiyappa	75	m	pattabiram	retired	H	M	lower	pattabiram	2 00pm	30/7/17	burns	burns	all over body	BD			burns	ACC
68	1655/17	alokpaik	25	m	ambattur	labourer	H	unM	lower	thiruvallur	8 30 p m	21/7/17	hemorrhage	FFH	head injury	TRT			head injury	ACC
69	1687/17	pintukumar	24	m	bihar	welder	H	M	lower	ayanapakkam	5 35pm	25/7/17	shock	electrocution	nil	BD			pending	ACC
70	364/17	amarjith mandal	20	m	west bengal	labourer	H	unM	lower	chennai	4 30pm	15/2/17	burns	electric shock	all over body	TRT			septicemia	ACC
71	403/17	riyas	15	m	pudupet	student	M	unM	lower	pudupet	5 00am	21/2/17	burns	accidental fire	all over body	TRT			septicemia	ACC
72	415/17	somasekar	25	m	gudiyattam	labourer	H	unM	lower	dp palayam	4 00pm	18/2/16	burns	electric shock	all over body	TRT			septicemia	ACC
73	418/17	pandiyan	82	m	korukupet	retired	H	M	lower	korukupet	10 00am	22/2/17	electrocution	electric shock	all over body	TRT			electrocution	ACC

74	409/17	royappan	50	m	madurandakam	mason	H	M	lower	madurandakam	1 30pm	18/2/17	burns	accidental fire	all over body	TRT			septicemia	ACC
75	500/17	selvaraj	60	m	villupuram	labourer	H	M	lower	patravakkam	8 00am	03-06-17	electrocution	electric shock	palms and soles	BD			electrocution	ACC
76	523/17	velayudham	55	m	thoraipakkam	labourer	H	M	lower	avadi	4 00pm	03-09-17	shock	accidental burns	all over body	BD			shock	ACC
77	507/17	janani	19	f	ayanavaram	student	H	unM	lower	ayanavaram	12 30pm	03-07-17	shock	FFH	mulitiple injury	BD			shock	ACC
78	449/17	aisha	42	f	kallakurichi	house wife	M	M	lower	kallakurichi	5 00am	18/2/17	burns	accidental burns	all over body	TRT			shock	ACC
79	363/17	chiranjit	24	m	west bengal	labourer	H	unM	lower	sowcarpet	11 15pm	02-12-17	shock	accidental burns	all over body	TRT			shock	ACC
80	286/17	jagannath	34	m	otteri	painter	H	M	lower	otteri	5 50am	31/1/17	burns	accidental fire	all over body	TRT			septicemia	ACC
81	1633/17	devanayagam	67	m	arumbakkam	labourer	H	M	lower	arumbakkam	5 30 pm	22/7/17	shock	electrocution	nil	BD			electrical burns	ACC
82	1612/17	adhil hassan	44	m	sennirkuppam	welder	M	M	lower	sennirkuppam	4 30pm	20/7/17	shock	electrocution	nil	BD			electrocution	ACC
83	300/17	samuel	45	m	vannarpet	labourer	C	M	lower	vannarpet	4 30 pm`	02-12-17	burns	electric burns	all over body	TRT			electrocution	ACC
84	224/17	varun	5	m	ayanavaram	student	H	unM	lower	ayanavarm	2 10 pm	31/1/17	shock	electric shock	nil	BD			electrocution	ACC
85	190/17	shyamkumar	13	m	korattur	student	H	unM	lower	korattur	1 00pm	22/1/17	burns	electrical burns	all over body	TRT			septicemia	ACC
86	182/17	shankar	38	m	villupuram	labourer	H	M	lower	vanagaram	10 00 pm	24/1/17	fall	FFH	head injury	BD			shock	ACC
87	141/17	jadabalupatra	27	m	orissa	mason	H	M	lower	perambur	2 00pm	19/1/17	head injury	FFH	mulitiple injury	BD			shock	ACC
88	30/17	sunnypoosan	17	m	avadi	student	H	unM	lower	avadi	4 00 pm	01-04-18	head injury	FFH	mulitiple injury	BD			shock	ACC
89	93/17	manohar	57	m	karimedu	security	H	M	lower	poonamalle	2 30am	13/1/17	shock	electrocution	nil	BD			electrocution	ACC
90	24/17	ashok kumar	25	m	cuddalore	welder	H	unM	lower	padi	4 40pm	01-03-17	head injury	FFH	head injury	BD			head injury	ACC
91	662/17	sinto varghese	27	m	kerala	painter	C	unM	lower	nungabakkam	2 45am	27/3/17	head injury	FFH	mulitiple injury	BD			multiple injury	ACC